Dental Digest

December 1953

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Vol. 59, No. 12

Dental Digest

Registered in U.S. Patent Office

DECEMBER 1953

About Our CONTRIBUTORS

I. Shapiro, Colonel USAFR (DC) (D.D.S., New York University College of Dentistry, 1916) has been associated professionally with the Veterans Administration since 1946 and is now Chief of Dental Service of the Veterans Administration Regional Office in Albany, New York. Colonel Shapiro's article is Film and Mechanical Aids in Intraoral Roentgenography.

Melvin E. Page, D.D.S. (University of Michigan, College of Dentistry, 1919), founder of the American Society of Anthropometric Medicine and Nutrition, has published two books and a number of articles on the various aspects of metabolism and dental disease. With the collaboration of D. L. Brooks, A.B. (Wheaton College, Norton, Massachusetts, 1931), assistant in dental medicine, Doctor Page presents the fourth installment of a series of articles, Body Chemistry in Health and Disease.

Harry Maeth, D.D.S. (Columbia University, 1925) follows his initial report on the use of the antibiotic, terramycin, in dentistry with an illustrated progress report of two endodontic cases in which the antibiotic was successfully used.

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The magazine is mailed on the fifteenth of the month of issue.

Film and Mechanical Aids in INTRAORAL ROENTGENOGRAPHY*

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DIGEST

This discussion of some of the problems encountered in intraoral dental roentgenography includes a detailed description of an appliance and film devised to eliminate distortion in dental x-rays. Step-by-step directions for procedure in using the device are given.

Distortion in Dental X-Rays

Bending of the dental x-ray film during exposure with consequent image distortion should be avoided as the basis of any technique the aim of which is the closest approach possible to an exact anatomic reproduction of the teeth or area in question. Several conditions contribute to distortion.

Digital Pressure—Curvature of the arch and of the roof of the mouth makes elimination of distortion impossible as long as the patient must retain in position by digital pressure the oversized flexible films available for use at present.

Folded Film a Cause of Distortion—To overcome the inevitable poor results, particularly in the more constricted anterior part of the mouth, many operators resort to folding the film, which reduces the size to facilitate placing in position, but increases rigidity of the film.

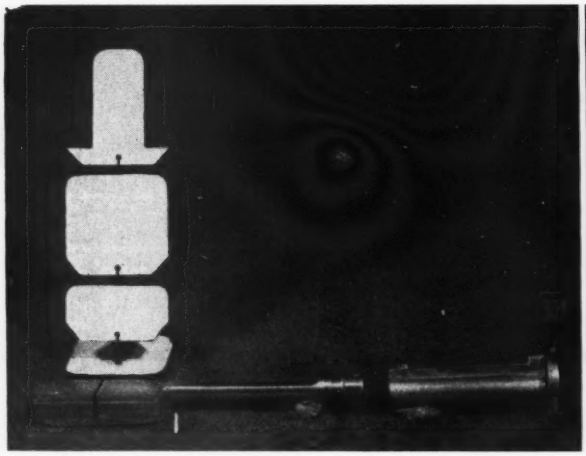
One Accurate Representation Secured—Although the average exposure will contain three and sometimes four teeth, actually, because of distortion, only one (that in the center as a rule) can be relied upon as an adequate representation of the tooth in question. In the others, distortion increases proportionately as the periphery of the film is reached.

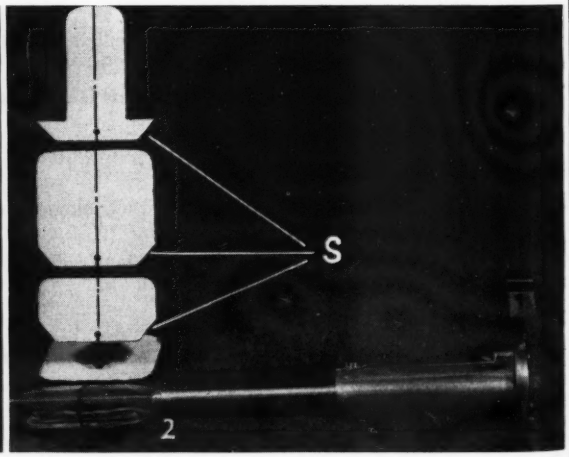
Exact Film Position Difficult to Obtain—A narrow rigid film reduced to the minimum in overall length for a single tooth exposure,[1] represents the nearest approach to the ideal. Obtaining the proper position by visual means, however, presents a problem, since the vertical center line of the film must coincide with the buccolingual longitudinal plane through the long axis of the tooth in order to secure its full outline within the confines of the film. A mechanical aid to accomplish proper placement would be of value.

Favored Technique—Most opera-

*Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions in this article are the results of the author's personal investigation and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1]Pollia, Joseph A.: Fundamental Principles of Alveolo-Dental Radiology, Brooklyn, New York, Dental Items of Interest Publishing Co., 1930, pp. 89-107.





1. ***The two main divisions of the device are shown. The section containing the bite-block and slotted shaft for the film packet (which lies in the mouth) has three types of film displayed behind it: (1) a single tooth at the top used mainly for anteriors, (2) a wider one to include two teeth for bicuspids and molars, and (3) the bite film at the bottom which takes in only one maxilla. The latter, if anything, tends toward greater accuracy than the type now in use.***

2. ***A quarter turn after insertion locks the mouth section (buccal aspect) into the adjoining or indicator section, making the implement ready for use.***

tors find it less difficult to secure the proper vertical angle by using the bisecting angle technique. The horizontal angle, however, requires greater accuracy as the crowns of the teeth normally are in contact proximally and the slightest deviation results in an overlapping of these surfaces, obliterating the area.[2] Procuring both angles readily at the same time would be ideal. This would necessitate accurate placing of the x-ray tube.

Means of Securing Proper Vertical and Horizontal Angles

To accomplish satisfactory results the following three conditions must be present:

1. A rigid film packet reduced to the minimum in size to permit of latitude in placement in confining areas, and definite in outline to ensure its being centered in the device.

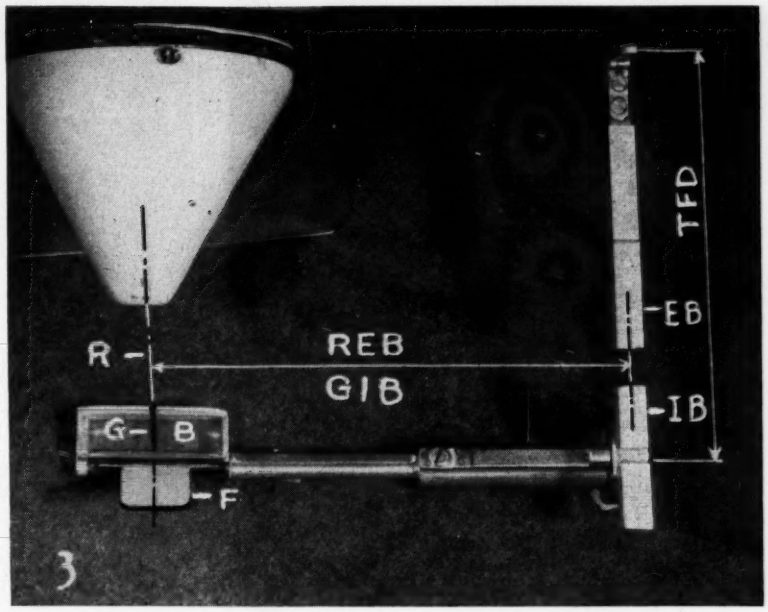
2. A mechanical device which would readily secure the packet in accurate position so that guidance of the central ray through the center of the film would be automatic while conforming to the basic principles of the bisecting angle or right-angle technique.

3. A means of ensuring the proper alinement of the x-ray tube to the film so that the correct vertical as well as horizontal angles are secured simultaneously.

Achievement of the requirements listed must be simple and uncomplicated for satisfactory application of the entire procedure.

Introduction of Indicator Bar

A device has been developed which will accomplish the desired results using the bisecting angle technique. While the device can be modified for the right angle (long cone) technique,[4] in its present state addition of a bite-block extension makes the appliance readily available for use when x-raying the posterior teeth; that is, bicuspids and molars. A combination of both techniques, therefore, is feasible in full mouth exposures. Another attachment which fits over the indicator bar converts it for use in stereoroentgenography. No attempt at refinement of the device has been considered at this time, the object being solely to demonstrate its usefulness and practical aspects.



3. ***The top view shows the relationship of the film packet "F" to bite-block "B". The center line of the film is continuous with that (guide line "G") of the bite-block. The distance between "G" and indicator bar "IB" equals that between central ray "R" and extension bar "EB". The target film distance "TFD" is always constant.***

Description of Device

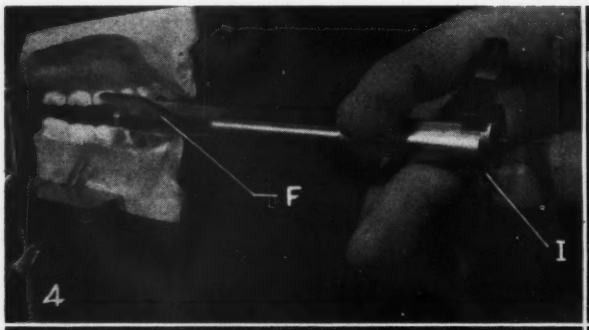
The rigid plastic framework of the film packet which prevents bending has a definite extension at the bottom with converging sides, each equidistant from the middle S (Fig. 2). This design ensures centering the film when the packet is inserted in the device. Regardless of the length or width, a line drawn through the center of the film will coincide with the horizontal guide line which divides the bite-block into halves (Fig. 3). The appliance is visualized and described in Figures 1 to 13.

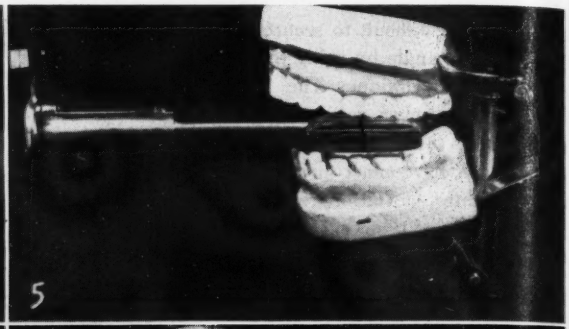
Additional Provisions

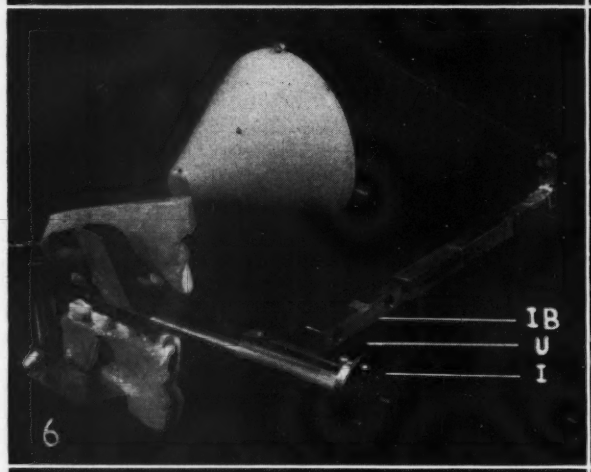
In the case of upper first bicuspids, provisions could be made to permit rotating the indicator bar about 25 degrees, in a horizontal plane, around the upright "U" as an axis, thus shifting the x-ray cone so that exposure will reveal two roots where these are present rather than one normally resulting from superimposition of the buccal on the lingual root. Maintaining the patient's head so that the plane of occlusion is parallel to the floor while the sagittal plane is perpendicular at the same time, would not be required.

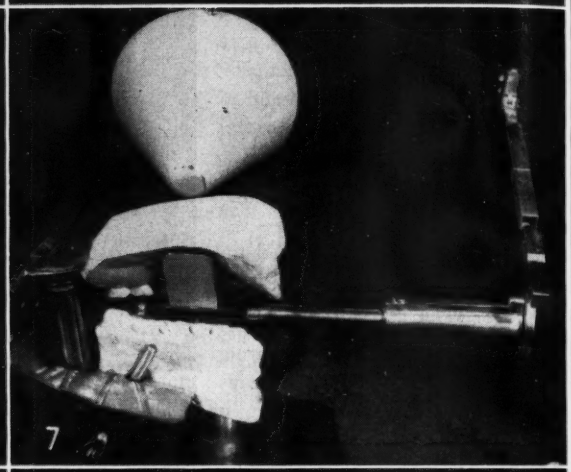
Possible to Eliminate Preliminary Steps—The conventional head position must be used, however, because of the universal type of x-ray tube suspension which limits its movements to a vertical and horizontal plane. An improvement would be a change to a ball and socket arrangement permitting adjustment in virtually any position, or the inclusion of a vertical swivel joint, at the point of suspension above the head, would eliminate this preliminary step entirely.

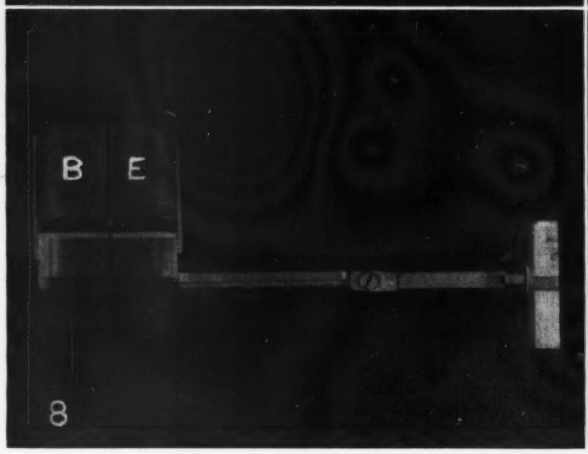
[2]Ennis, LeRoy M.: Dental Roentgenology, Philadelphia, Lea & Febiger, 1942, pp. 75-117.
[3]McCall, J. O., and Wald, S. S.: Clinical Dental Roentgenology, Technique and Interpretation, ed. 2, Philadelphia, W. B. Saunders Company, 1940, pp. 88, 89.
[4]Fitzgerald, Gordon M.: Dental Roentgenography II: Vertical Angulation Film Placement and Increased Object, Film Distance, JADA **34**:160-170 (Feb. 1) 1947.
[5]Fitzgerald, Gordon M.: Supplementary Roentgenographic Examinations, N.Y. State Dent. J. **15**:449-456 (Oct.) 1949.
[6]McCormack, Donald W.: Intraoral Roentgenology, DENTAL DIGEST **57**:106-114 (Mar.) 1951.

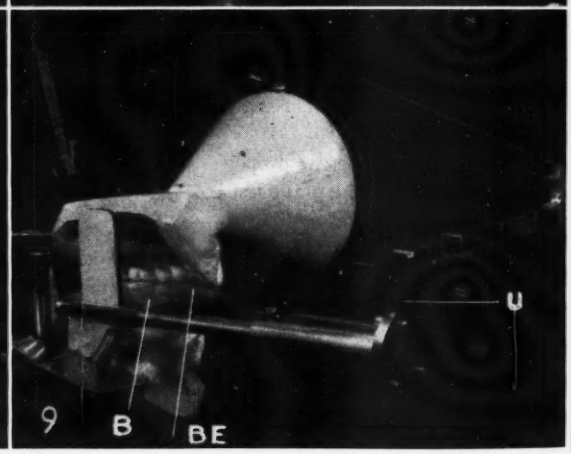












4. *The film is inserted into the mouth. Moving indicator "I" in the same direction, by pressure of thumbnail on the left nut, revolves the shaft so that the film assumes a horizontal position which facilitates its entry into the mouth. Black line "F" represents the edge of the film packet.*

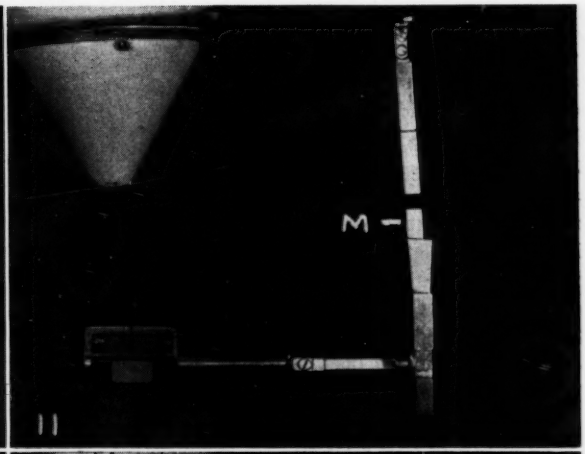
5. *The guide line between the bicuspid and molar automatically places the center of the film in the same position. After closing the teeth, release of the indicator permits the shaft to rotate (by means of an internal spring) toward the vertical, with the film packet coming to rest as it comes in contact with the tooth and lingual tissues as shown in Figures 6 and 7.*

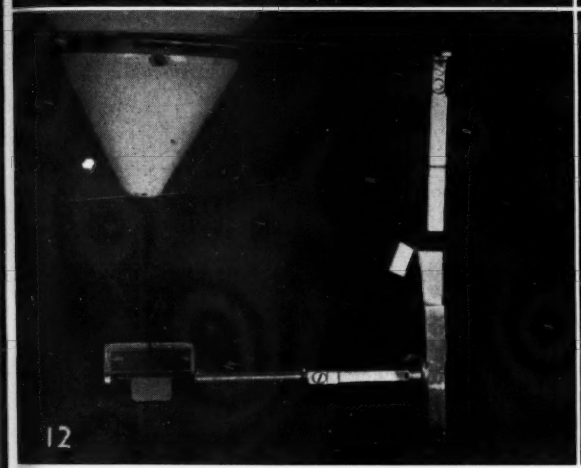
6. *The upright segment "U" (extending from indicator "I") by means of a mechanical arrangement, automatically bisects the angle formed by the planes of the film and the long axis of the tooth. The indicator bar "IB" at a right angle to the upright segment "U", denotes the proper direction to be taken by the central ray.*

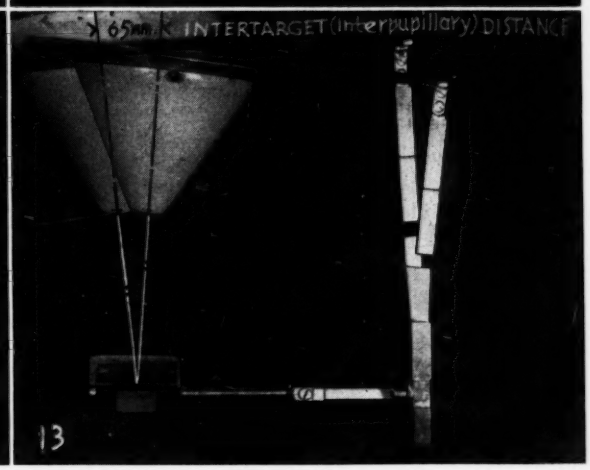
7. *Alining the extension bar on the yoke which fits over the x-ray cone with the indicator bar will simultaneously result in the proper vertical and horizontal angles. The fixed length of the indicator and extension bars ensures the same target distance at all times.*

8. *The bite-block extension "BE" for right angle or long tube technique in the posterior part of the mouth permits the position of the film in use as shown in Figure 9.*

9. *The film in position parallel to the long axis of the teeth in or beyond the median line with upright "U" parallel to it. Alinement of the indicator and extension bars will result in the central ray passing at a right angle through the center of the film. This situation is based on the premise that the occlusal surface of a tooth (for this purpose) is at a right angle to its long axis. Since film and tooth are at right angles to the surface of the bite-block, it follows that they are parallel to each other as well as to the upright "U."*





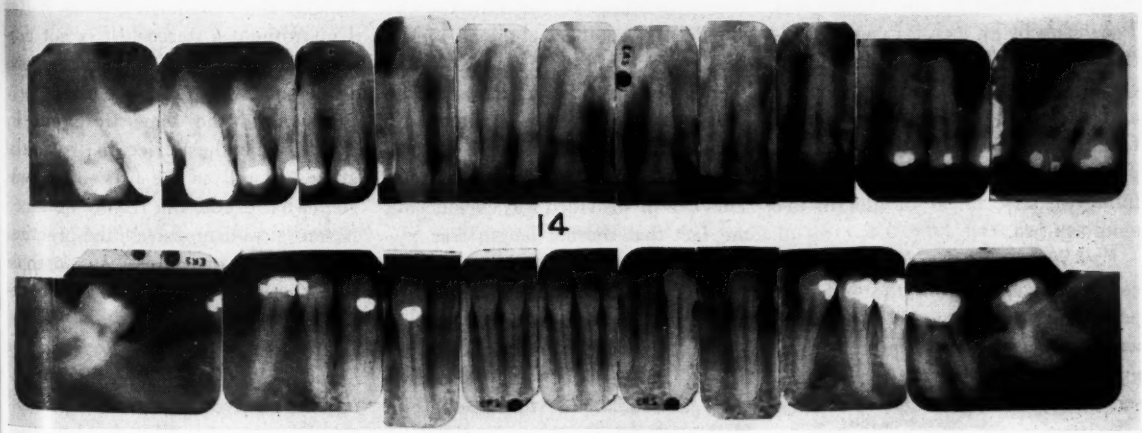


10. *Stereoroentgenography attachment "SE" which fits over the indicator bar.*

11. *First exposure with the bars alined in the left position. The movable attachment "M" is shown.*

12. *The second film and exposure in the correct position are demonstrated. The movable end of the attachment "M" is swung out of the way. For additional accuracy, rather than relying entirely on the bite-block guide line, baseplate wax or compound luted to the under surface of the bite-block and used as an index of the teeth will ensure exactly the same position when making both exposures.*

13. *A composite view showing how attachment design (calibrated) produces an intertarget (interpupillary) distance of 65 millimeters.*



14. *Shows a full mouth series where an individual exposure is made for each of the anterior teeth.*

X-Rays of Individual Teeth Possible—Although the most desirable results would be obtained by x-raying each tooth individually, this method is impractical[6] because of the difficulties involved. Use of the procedure advocated, however, makes individual x-rays possible; this method was used in obtaining the radiographs shown, from the upper left bicuspid to the right cuspid inclusive, as well as the lower anterior teeth. The method could be used for all the teeth (Fig. 14).

Attachment for Use in Stereoroentgenography

Because of the difficulties involved in attempting stereoroentgenography with the present dental x-ray equipment, this valuable adjunct has become almost a lost art.[5] The use of the attachment illustrated in Figures 10, 11, and 12, it is believed, would encourage more general use.[3]

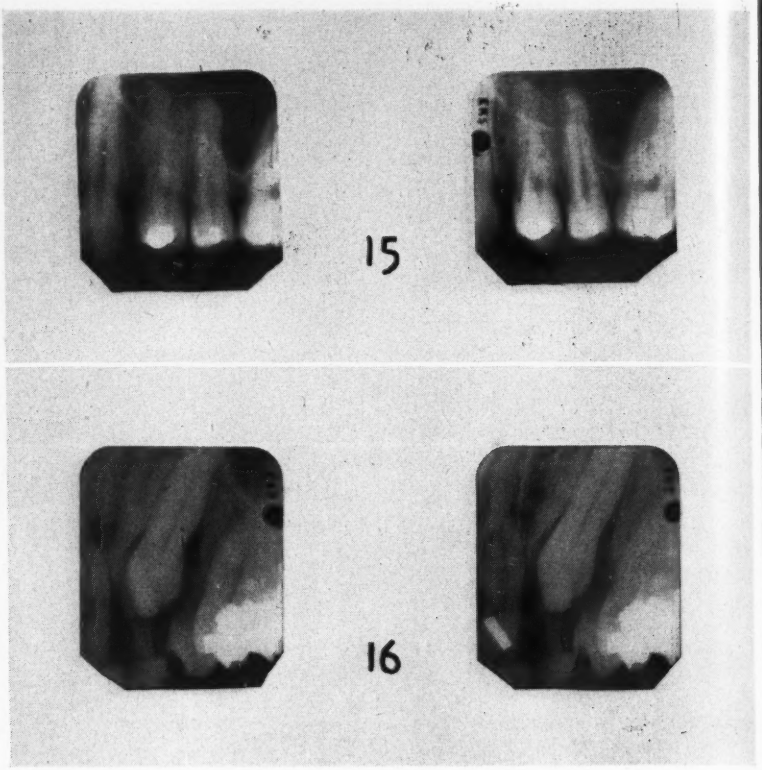
Bite-block Cover Provided—A thin individual plastic bite-block cover is planned. This device, containing the tooth registration in compound (shown in Figure 12), is an aid in placing both films accurately in the same position. The bite-block cover can also be used and retained for future use in all cases where a follow-up check is contemplated.

Method Advocated

Standard type periapical films were cut to sizes 1¼ inches by 1 1/16 inches for bicuspids and molars and 1⅜ inches by ⅝ inch for cuspids. Although strips ⅝ inch wide (for incisors) were obtained by cutting across the narrower film dimension to facilitate their use, those for the cuspids could be used as well, thus confining the assortment of film in the mouth to two.

Full Size Packet Used—In the lower third molar region the full size packet was used, since an adjustment not incorporated at the present time precluded the use of the method described for bicuspids and molars in extending to the retromolar area to complete the full mouth series.

Bending of Film Prevented—A thin sheet of rigid steel plate, similar in outline to the film designs illustrated in Figures 1 and 2, was attached by means of scotch tape to the cut packet lingually in each instance before placing it in the device. This step precluded bending of the film thereby simulating the effect obtained by use of the rigid plastic framework recommended for the ready-made packet.



15. ***An upper bicuspid view with the exposures made and the films mounted for stereoscopic study.***

16. ***An impacted upper cuspid with the exposure made and the films mounted for stereoscopic study.***

Increase in Length—The initial results show a slight increase in film length indicated for the cuspid teeth. This can be provided for, considering the fact that the cut length was 1¼ inches in contrast to the long dimensions of 1⅝ inches of the films now in use.

Stereoscopic Views for Additional Study—Both upper first bicuspids show a double root formation. For further study, stereoscopic views of the right one were taken. The results may be seen by examining the mount through a hand stereoscope (Fig. 15). An additional view of an impacted cuspid is shown to reveal the exact location of the unerupted tooth (Fig. 16).

Stereoscopic Pictures Feasible—Although the Standard Dental X-Ray Unit without a stereoshift is not constructed to permit the exact movements necessary in stereoroentgenography and the films were cut by hand, while the device in its initial stage, as well as the procedure, was somewhat crude, the results obtained nevertheless demonstrate the practical aspects of obtaining stereoscopic views readily by the procedure described.

Additional Effort Warranted by Results—Obtaining occlusal roentgenograms involves less than the periapical because the film holder (not shown), acting as a receptacle, is not removed from the mouth during the changing of the films. The additional

information gained from these views, compared to the ordinary single flat plane, warrants the small additional expenditure of time and effort required.

Central Ray Controlled—The ability virtually to pinpoint focusing of the central ray permits restricting the circle of useful radiation to the smallest practical diameter with the ultimate effect of confining it to the approximate size of the film. Unnecessary exposure of the patient is avoided, and as stressed, potential danger to the operator by direct and stray radiation is avoided.

Summary

1. A mechanical device is presented which will indicate the proper positioning of the dental x-ray cone during exposure, using the bisecting angle technique with an attachment to include the right angle technique for bicuspids and molars.

2. An additional means is provided to facilitate alinement of the x-ray tube to secure proper vertical and horizontal angles simultaneously.

3. The procedure involves the use of a rigid periapical and bitewing dental film packet, definite in outline design, and reduced to the minimum in size to facilitate placement.

4. The appliance is also adaptable for stereoroentgenography.

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Civil Malpractice

Important Points in Preventing Malpractice Claims

1. Handle cases only within your professional qualifications; call in consultants whenever necessary.

2. Do not be overoptimistic in prognosis.

3. Always obtain adequate consent.

4. Always keep adequate records for your own as well as your patient's protection.

5. Always have x-rays taken of bone and joint injuries. Use laboratory test, even though simple, when indicated.

6. Make frequent enough calls and give sufficiently precise instructions so that there can be no misunderstanding. Be sure you write your prescriptions legibly.

7. Be sure that your patients are covered by medical attention in the event of your absence.

8. Know what to do when the patient does not follow instructions or discontinues treatment.

9. Do not gossip about your cases.

10. Do not criticize your professional colleagues.

From *Medical Clinics of North America* **37**:No. 5, 1575 (*September*) 1953.

The Chemistry of Disease

MORE SHOULD be known of the chemistry of disease. When it is, physicians will not be content to accept the traditional view that when a person is not well, or as one ages, he must expect to lose strength, keenness of vision, and alertness and to look and act "old." The physician can never get away from the challenge to think. There will be no automatic or mechanical diagnosis in the near future. The physician who has an uncanny sensitiveness associated with a capacity for memory and experience is needed more in this field than in any other. He must have in mind that there is nothing constant in the human body. The nutrients ebb and flow into the cells. They all bear potentials for change. In this ever-shifting, ever-renewing of the constituents of the body, the cells must be renewed or there will be deterioration. These forces shape the patient's destiny.

—Tom D. Spies, M.D.: JAMA **153**:185-193 (Sept. 19) 1953.

BODY CHEMISTRY

in Health and Disease—Part Four

MELVIN E. PAGE, D.D.S., and D. L. BROOKS, A.B., St. Petersburg, Florida

DIGEST

The endocrine content of the blood, although minute, is not insignificant; it is capable of maintaining life. The assumption is therefore justified that minute quantities of endocrine substances can also be used to obtain health. Systemic factors related to oral health should receive the attention of dentists: the patient presents more than an oral problem and if he is to receive maximum health service he should be considered as a total organismal entity.

Graph interpretation and the response of calcium-phosphorus blood levels to minute amounts of endocrines demonstrate hypo and hyperfunctioning glandular activity for the thyroid, posterior pituitary, and anterior pituitary glands. Success in changing calcium-phosphorus blood levels by these means is dependent upon the right endocrine in the right amount for the particular person.

The outstanding physical characteristics of each gland in hyper- or hypo-function are noted with comment upon changes in blood sugar levels, specific gravity of the urine, and blood pressure. The conclusion is that the thyroid gland is opposed by the insulin-producing cells of the pancreas, the posterior pituitary gland is opposed by the adrenal cortex, and the anterior pituitary gland is opposed by the pancreas and/or the sex hormone glands.

Clues to endocrine dosage are (1) the degree of graph divergence from normal, (2) age, and (3) correlation of various blood indexes. The intent of this therapeutic approach is to supplement glandular production only to the extent of the gland's own limitation. To supplement in excess of need or normal production would defeat the purpose of establishing an efficient body chemistry. Too little is known about the body's daily production of endocrines, but indexes of efficient body chemistry where norms have already been established can be accepted as indicators of progress.

Purpose of Treatment and Dosage

The significant difference between endocrine treatment based on the approach described in these articles and endocrinology as practiced by physicians is: In medicine endocrines are used as a rule in large doses to achieve a pharmaceutic response; in this approach endocrines are applied in minute doses to make up deficiencies in the subject's glandular output. The medical approach produces an immediate response to overcome an acute situation; this approach produces a gradual increase in chemical efficiency to overcome an inherited or chronic inefficient body chemistry sometimes called a state of low resistance. The purpose of treatment differs to the same extent that dosage differs.

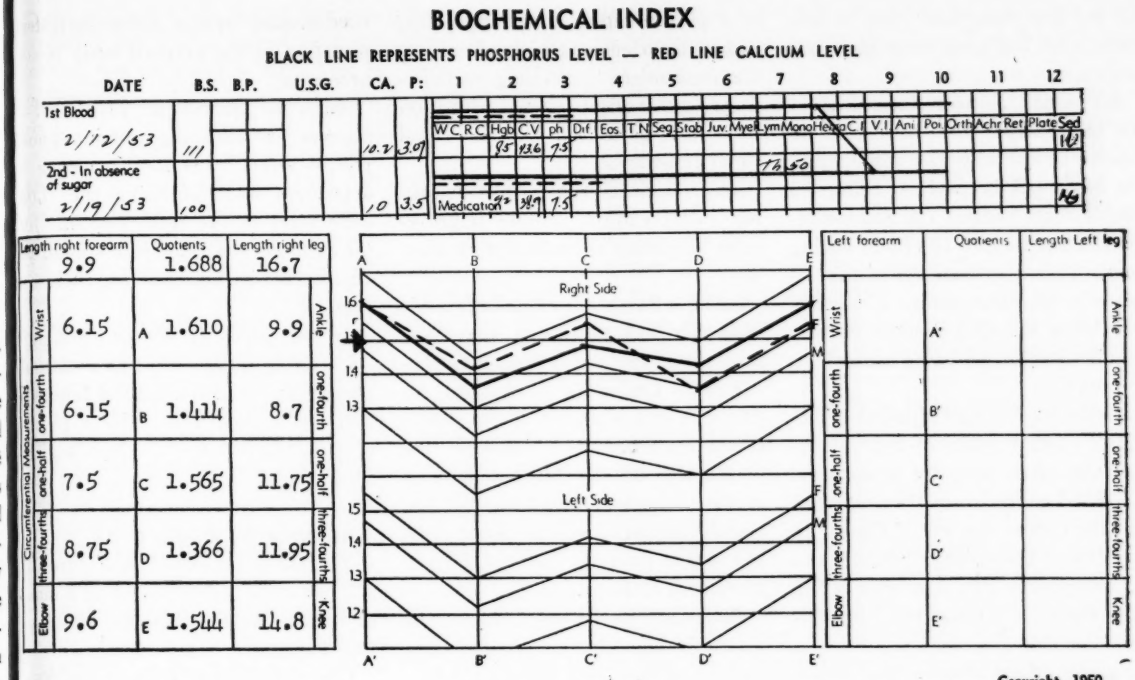
Ingle and Baker[1] distinguish between the *physiologic* dosage (the amount does *not* exceed the normal secretory output of a gland) and the *pharmacologic* dosage (the amount is *greater* than that normally secreted by a gland). In their words: "The biologic response to high dosage of any drug or hormone tends to decrease with time due to the general phenomenon of adaptation . . . There is a growing tendency to employ the smallest doses of hormone which will initiate a remission, not always complete, and to subsequently reduce the dose to achieve the best possible suppression of symptoms consistent with avoidance of significant complications."

Endocrine Dosage Infinitesimal—Generally speaking, the medical profession would consider the endocrine dosage advocated in this technique so small as to be insignificant. Even biochemists refer to the endocrine content of the blood as so small as to be insignificant. The endocrine elements in the blood are in fact so minute that under present methods of chemical analysis they are almost incapable of fractionization.

Life Maintained by Blood Content—It is, nevertheless, an undisputed fact that the blood is the transporting medium of endocrine secretions within the body. Without endocrine substances death occurs.

Health and Ill Health—If such minute amounts of endocrines make the difference between life and death it is reasonable to conceive of minute amounts making the difference between health and illness.

[1]Ingle, Dwight J., and Baker, Burton L.: Physiological and Therapeutic Effects of Corticotropin (ACTH) and Cortisone, Springfield, Illinois, Charles C Thomas, Publisher, 1953, p. 81.



·31·

Factors to be Discussed

Changes in Blood Indexes—In the following discussion the effect upon calcium-phosphorus levels in the blood will be of particular interest because of its importance in a systemic understanding of dental ills. Regardless of the focus and limitation of his activity the dentist should have an understanding and appreciation of underlying systemic factors which affect the patient as a whole being.

The Patient a Total Organism—The patient who sits in a dental chair does not present merely an oral problem. He is first of all a human being composed of many indivisible parts, emotional reactions, and mental attitudes. He must be understood, approached, and treated as a complete entity, a total organism, if he is to receive the ultimate in health service. This is the unitary concept of therapy.

Method of Presentation—Before demonstrating a complete case history, studies will be made involving one gland alone. The graph indications for endocrine choice will be discussed. Blood tests prior to treatment will be recorded for comparison with blood analyses obtained following treatment. Studies of hypofunctioning glands will be followed by study of the same gland in hyperfunction.

Corrected Diet-Definition—It should be understood that unless otherwise specified the patients represented in this article were following a corrected diet at the time blood analyses were taken. *Corrected diet means no sugar in any form, no fruit juice, no white flour, no milk, no alcohol, and immediately prior to a blood test, not even any whole fruit, and no coffee on the day of the test.*

Analysis of Figure 31

The outstanding physical characteristic of a person with a hypofunctioning thyroid is heaviness of the leg just above the ankle, the first 1/4 circumferential leg measurement.

Hypofunctioning Thyroid Shown—The patient in this case (Fig. 31) is a woman with a hypofunctioning thyroid. The starting point of the graph, it will be noted, is 1.610. This is higher than normal; therefore, the reading will be simplified if a normal graph is superimposed upon the chart. The starting points, for both the specific graph and the normal, coincide. It will be recognized that the dotted line coming above the normal solid line indicates a hypofunctioning thyroid which was described in Installment Two of this series of articles.

Results of Blood Analysis—The blood analysis (Fig. 31), taken prior to the use of thyroid extract, shows a blood sugar of 111, calcium 10.2, phosphorus 3.07, hemoglobin 85, cell volume 43.6, blood pH 7.5, sedimentation rate 16, according to the Clay-Adams method of determination. (Normal sedimentation rates: men, 0-8; women, 0-10, 12-14 during menses.) Since phosphorus utilizes calcium at the rate of 2.5 times itself, multiply the phosphorus of 3.07 by 2.5. The answer is 7.67. This is the usable compound level of calcium and phosphorus.

Excess Calcium Present—In the biochemical index note that the solid calcium line extends beyond the pencil point (7.67) to 10.2 (the calcium level at the time of this analysis). This means that there is an excess of 2.5 milligrams of free, uncombined calcium. This excess is consistent with the hypofunctioning thyroid graph

and the low compound level is consistent with the occurrence of yearly cavities.

Additional Factors Considered—The blood sugar level of 111 is indicative of carbohydrate intolerance. The blood pH is alkaline, being 7.5 instead of the normal 7.4. Sedimentation rate should be 0-10 (12-14 during menses) for a woman but in this instance is 16. Hemoglobin is slightly low, being 85. Cell volume 43.6 is virtually perfect, 43 being normal for a woman.

Endocrine Therapy Applied—One-fiftieth (1/50) grain of thyroid extract was given daily for seven days. The blood analysis was then repeated with the results charted in Figure 31 (2/19/53): Blood sugar 100, calcium 10, phosphorus 3.5, hemoglobin 92, cell volume 38.7, blood pH 7.5, sedimentation rate 16.

Normal Blood Sugar—The blood sugar in this subject is now a perfect 100. In this approach this is normal and anything above or below is abnormal although medical textbooks quote normal blood sugar levels at anywhere from 80 to 120. Probably this is true of the *average* person on the usual American diet; nevertheless, in a person eating a corrected diet, and with an efficient body chemistry the mechanism controlling carbohydrate metabolism should function with such perfection that the blood sugar remains at 100.

Improvement Noted—The following ratios exhibit definite improvement following thyroid extract therapy:

Calcium-Phosphorus Rate Improved: Not only has the blood sugar improved but also the calcium-phosphorus ratio. Under the biochemical index, if a dot is placed at the usable compound level, 8.75 (multiply the phosphorus 3.5 by 2.5) an increase in the *usable* compound level of calcium-phosphorus will be noted. This is a step in the right direction for improvement of dental health.

Reduction in Excess Calcium: At the same time that the usable compound level increases, there is a reduction in the amount of excess calcium. At first there were 2.5 milligrams of excess calcium; now there is less than 1.5 milligrams of excess calcium. Improvement of blood sugar, calcium-phosphorus ratio, and compound levels was due to the use of thyroid extract. The choice of thyroid extract was dictated by the endocrine interpretation of the graphed body measurements.

Basis of Successful Treatment—Success in changing calcium-phosphorus levels by endocrine means is dependent upon choosing the *right endocrines in the right amount, for the right person.* This rule should be kept in mind while studying these reports.

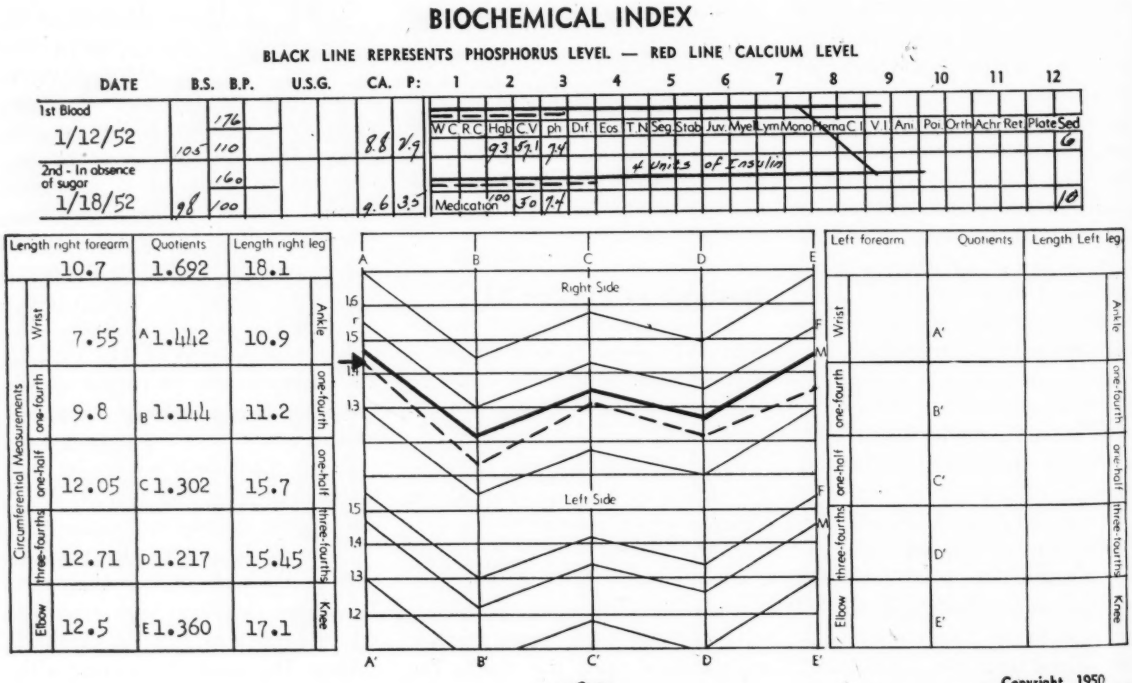
In the words of Walter Cannon:[2] "Treatment should serve in a natural manner to perform a natural function that has broken down. Use a physiological factor for a physiological defect."

Analysis of Figure 32

The study presented in Figure 32 is a case of hyperthyroidism in a male in contrast to the previous hypothyroid female.

Characteristics of Hyperthyroidism—The outstanding physical characteristic of a hyperthyroid person is the slimness of the leg just above the ankle bone (Fig. 32). The starting point on the graph for this male patient is 1.442. When the patient's

[2]Cannon, Walter B.: The Wisdom of the Body, New York, W. W. Norton & Company, Inc., 1932, p. 242.



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graph is plotted, the dotted line representing his measurements falls too low on the vertical line BB'. This is indicative of a hyperfunctioning thyroid.

Results of Blood Analysis—A blood analysis prior to treatment (1/12/52) but on corrected diet, shows a blood sugar of 105, calcium 8.8, phosphorus 2.9, hemoglobin 93, cell colume 57.1, blood pH 7.4, sedimentation rate 6, blood pressure 176/110.

Factors Concerned in Blood Pressure—It is commonly known that the *average* blood pressure increases with age. It is not so well known that a *normal* blood pressure remains at the same level throughout adult life. The normal blood pressure is 113-120 over 70. The upper pressure is the systolic; the lower pressure is the diastolic. Most people know about their systolic blood pressure but few appreciate that the diastolic is the more important in cases of hypertension. In this instance, the 110 diastolic is excessive.

Effects of Related Glandular Deficiencies—A high phosphorus blood level might have been expected in the hyperthyroid person in this case. This does not necessarily occur, however, when other glandular inadequacies are also involved. To estimate the degree of imbalance in the blood picture, multiply the phosphorus of 2.9 by 2.5. The answer of 7.25 provides the usable compound level. The difference between this 7.25 and the calcium blood level of 8.8 is 1.55 milligrams, the amount of excess calcium.

Overactivity a Treatment Problem—In the previous case (Fig. 31) thyroid extract was used because the patient's own gland was underfunctioning. In this case (Fig. 32) there is a hyperfunctioning or an overactive gland. This gland is either making too much thyroxin or an abnormal substance. The problem, therefore, is not to make up for a deficiency in output, but to inhibit overactivity.

Endocrine Therapy Applied—It has been found through experience that thyroid substance is opposed, at least in part, by insulin. Consequently, the patient was given 4 units of 40-unit protamine zinc insulin once daily for six days. This dosage which would be inadequate for the treatment of diabetes is nevertheless adequate when used for alteration of calcium-phosphorus blood levels.

Results of Initial Therapy—After taking 4 units of insulin once daily for six days, another blood analysis produced the following results:

Blood sugar 98, calcium 9.6, phosphorus 3.5, hemoglobin 100, cell volume 50, blood pH 7.4, sedimentation rate 10. Multiplying the phosphorus of 3.5 by 2.5 again, a usable compound level of 8.75 is demonstrated.

Excess Calcium Reduced—There is now less than 1 milligram of excess calcium in contrast to the original 1.5 milligrams of unused calcium.

Additional Favorable Alterations—Note also that the hemogloblin has risen to 100. The cell volume has dropped from 57.1 to 50 (45 is normal for a man). The pH of the blood remained at a normal of 7.4. The sedimentation rate has risen slightly, although it is still within normal limits. The blood sugar has changed from a little above normal to slightly below normal. The blood pressure, both diastolic and systolic, has dropped.

Cumulative Effect of Changes Significant—All these changes are small but cumulatively they are significant. All are indexes of increasing efficiency of body chemistry, increasing resistance to oral degeneration, and other forms of degeneration.

Comment

The effect has been demonstrated of two different endocrine substances upon calcium-phosphorus blood levels (thyroid and insulin). Opposing endocrine substances have been used for opposing endocrine patterns with improvement of calcium-phosphorus ratios in both instances.

Analysis of Figure 33

In this graph (Fig. 33) the high midpoint (the C-C' line) is indicative of a hypofunctioning posterior pituitary gland. The middle peak is higher than the normal. The outstanding physical characteristic for a hypofunctioning posterior pituitary is found about midway between the ankle and the knee. There is a marked curve at the calf of the leg at this point.

Note—It must be kept in mind that in this series of studies a deficiency or hyperactivity of one gland is being demonstrated at a time. Other glandular dyscrasias may exist in the same case, and often do, but for explanatory purposes attention is directed to only one.

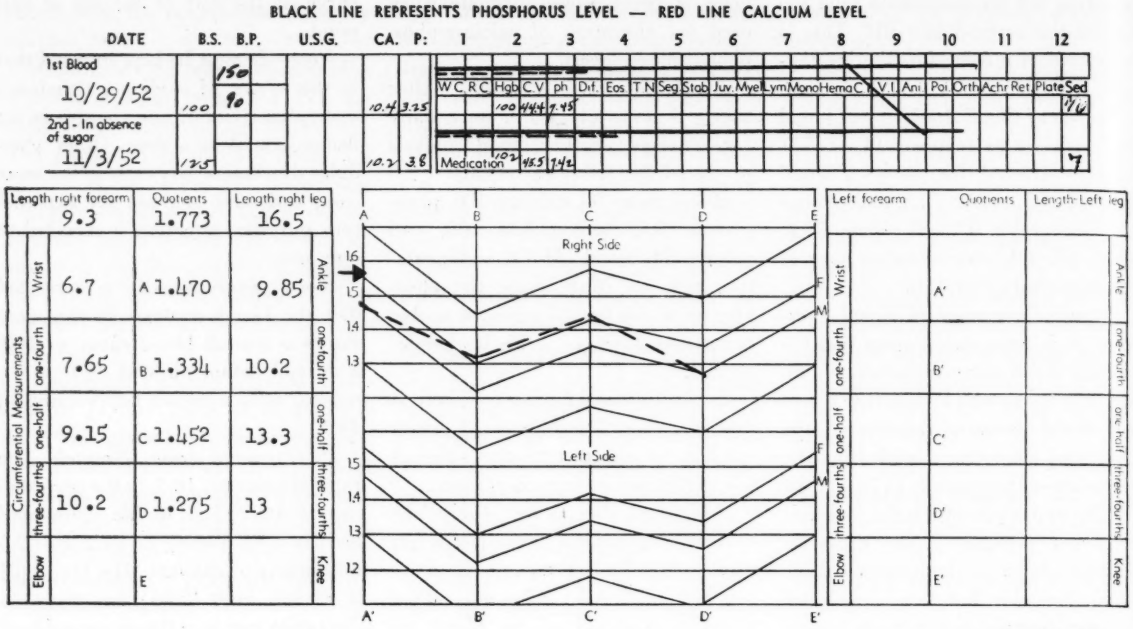
Blood Analysis—On a corrected diet the blood analysis in this case shows a normal blood sugar of 100, a normal hemoglobin of 100, and a normal female blood cell volume of 44.4.

Divergencies from Normal—The ratio of calcium, 10.4, to the phosphorus is 3.25. The usable compound level is 8.00, leaving an excess of 2.5 milligrams of calcium. The blood pH is slightly high (7.45) and the sedimentation rate is at the abnormal level of 26. Blood pressure is 150/90, and the *average* specific gravity of the urine runs below normal.

Hypertension in Hypoposterior Pituitary Conditions—It is not unusual to find hypertension in people with hypoposterior pituitary glands. It is usual to find a lessening of the hypertension with correction of the deficiency in posterior pituitary function.

Kidney Mechanism—The posterior pituitary gland seems not only to have an indirect influence on blood pressure, but also upon the specific gravity of the urine. The kidneys take from the blood approximately a barrel of water daily. A barrel of water would be an inconvenience both in intake and output. In this situation nature is a successful conservationist. All fluid intake is circulated through Bowman's capsules of the kidneys. In passing through the kidney tubules much liquid is reclaimed for reuse. A relatively small amount of liquid is utilized to carry out unwanted waste material in the urinary flow. The amount of daily glomerular filtrate is thought to be 100 times the amount of urine excreted.

Method of Estimating Kidney Efficiency—The efficiency of the kidney mechanism is registered in the density of the outgoing urine: (1) A low spe-



cific gravity of urine means low density and inadequate water conservation, and (2) the normal specific gravity reading should be 1.022 both morning and night.

Specific Gravity Level Improved—(1) If the figures indicating specific gravity obtained both night and morning for several days have a low average, and (2) if the graphed measurments indicate hypofunction of the posterior pituitary, the specific gravity levels will tend to improve with the use of the correct amount of posterior pituitary substance for that person.

Therapy Administered—The patient in this case (Fig. 33) was given 1/400 grain of posterior pituitary extract daily for five days. A blood specimen taken at the end of that interval (11/3/52) showed an undesirable sugar level of 125 which indicates that posterior pituitary supplement is not the only requirement in this case.

Improvement Demonstrated—Calcium-phosphorus ratios improved markedly with therapy. The calcium blood level was 10.2 and the phosphorus blood level 3.8, producing a compound level of 9.5. This left less than 1 milligram of excess calcium, as opposed to the original 2.5 milligrams of excess calcium.

Analysis of Figure 34

The graph of the patient in this case (Fig. 34), that of a hyperfunctioning posterior pituitary in a female, shows the midpoint flattened and falling below the normal.

Typical Physical Characteristic—Straightness of the leg between the ankle and knee is the chief physical characteristic of the person in this graph. The midcalf has little or no bulge or curve.

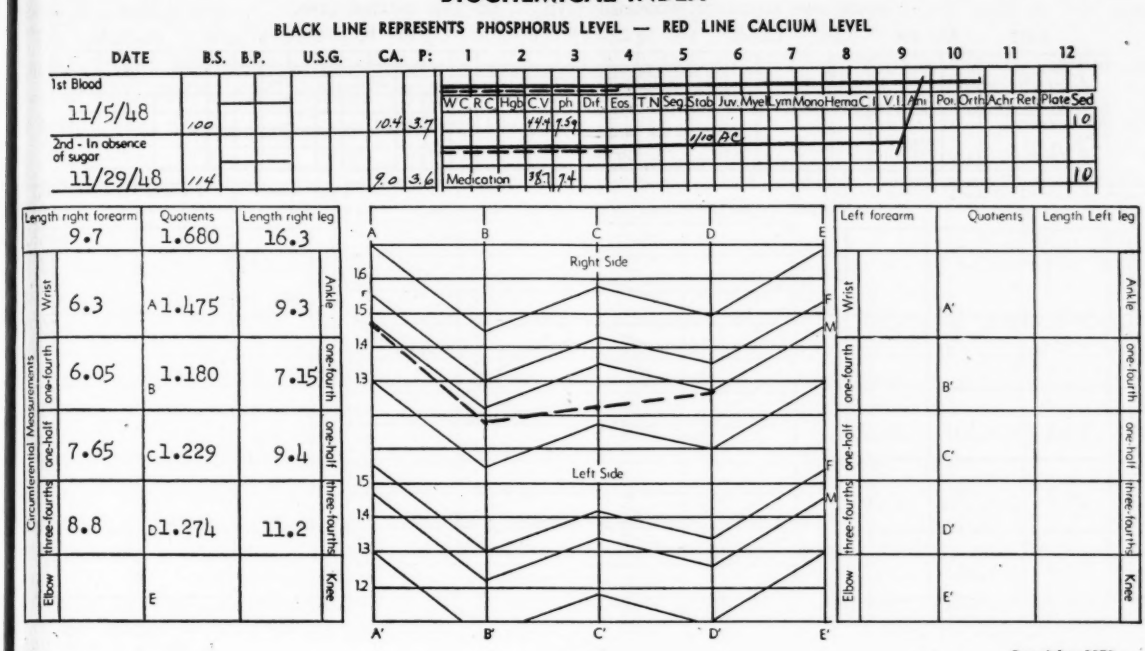
Results of Initial Blood Analysis—The first blood test on the corrected diet shows a blood sugar of 100, calcium 10.4, phosphorus 3.7, cell volume 44.4, blood pH 7.59, sedimentation rate 10. The phosphorus of 3.7 multiplied by 2.5 gives a compound level of 9.25. There is one milligram of excess calcium.

Minute Amount of Hormone Administered—The patient was given 1/10 grain equivalent of adrenal cortex daily. The effect of this dosage is shown (11/29/42) in a blood sugar reading of 114, calcium 9, phosphorus 3.6, cell volume 38.7, blood pH 7.4, sedimentation rate 10.

Increase in Blood Sugar Level Interpreted—There is no excess of calcium. A perfect balance of calcium-phosphorus is present, but the increase in the blood sugar level would indicate (1) that the dosage of adrenal cortex is too strong, or (2) that other glandular supplementation must be used concurrently with the adrenal cortex.

Method to Inhibit Overactive Posterior Pituitary—Extract from the adrenal cortex gland is used. Tablets of adrenal cortex in minute dosage are available for oral administration, but in the majority of cases suprarenal cortex liquid is preferable. The reason for this is twofold: (1) dosage is more easily regulated in the liquid form, and (2) 75 per cent of cases of this type also require insulin to inhibit an overactive thyroid and/or an overactive anterior pituitary.

Method to Maintain Blood Sugar at Normal Level—In cases of combined overactivity of the thyroid and anterior pituitary blood sugar levels may appear consistently normal. Insulin and suprarenal cortex dosage must then be so balanced in their ratio to each other that the blood sugar is maintained at normal. The expected



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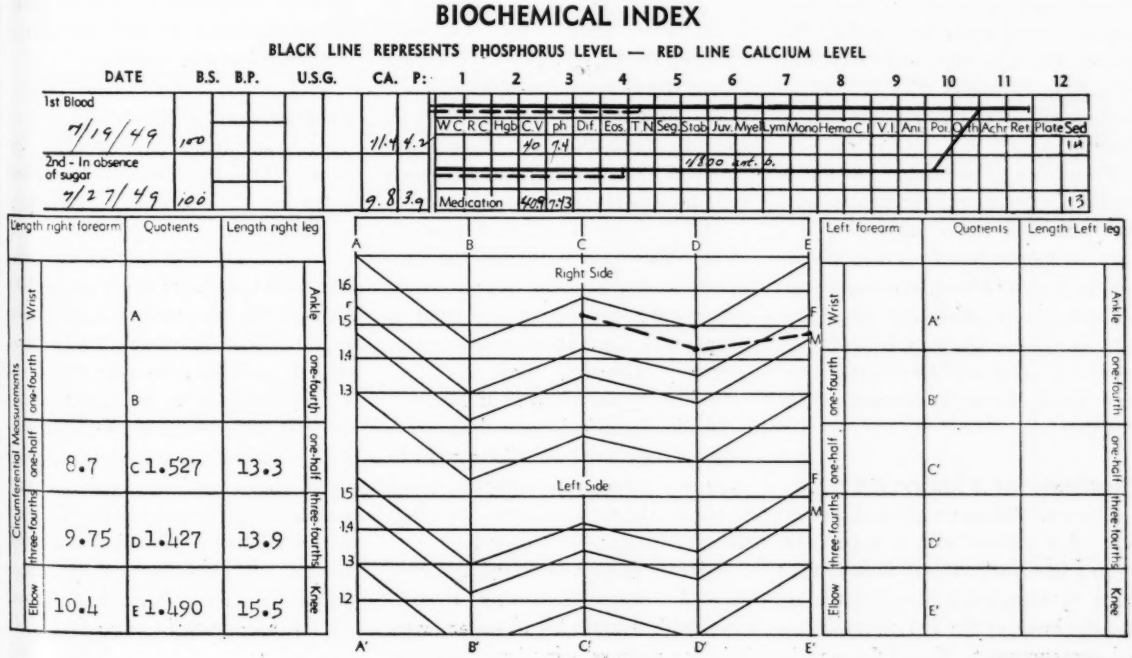
reaction is for the cortex to raise the blood sugar and the insulin to lower it. A correct ratio of the two will maintain the blood sugar at the normal level. It is not surprising, therefore, to find an increase in the blood sugar level in this case (Fig. 34) following the use of adrenal cortex alone.

Analysis of Figure 35

The outstanding physical characteristic of a person with a hypofunctioning anterior pituitary (DD' line) is the heaviness of the legs from the midpoint to the knee; there is no inward curve at the 3/4 circumferential measurement.

Results of Blood Analysis—In this



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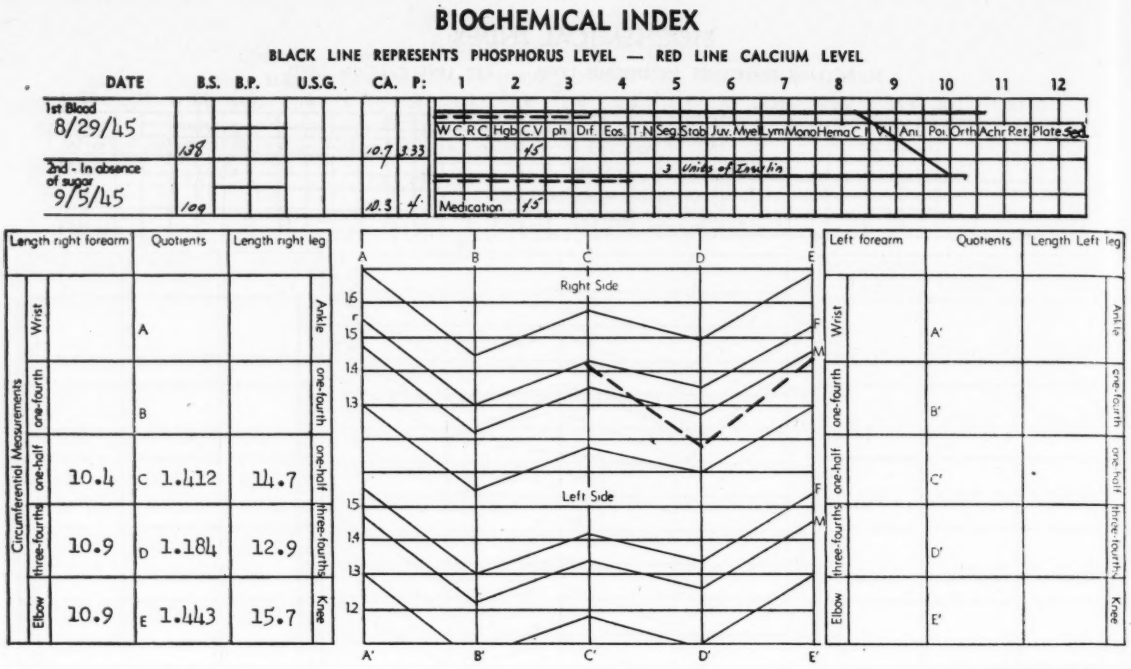


case (Fig. 35) the blood test prior to the use of anterior pituitary substance shows a blood sugar of 100, calcium 11.4, phosphorus 4.2, cell volume 40, sedimentation 14, blood pH 7.4.

Improvement Following Therapy—Anterior pituitary substance, 1/800 grain, was given daily for a week. Blood analysis made at this time shows a blood sugar 100, calcium 9.8, phosphorus 3.9, cell volume 40.9, sedimentation 13, blood pH 7.43. The .75 milligrams of excess calcium was reduced to nearly 0.

Endocrine Overdosage Should be Avoided—Since an overactive anterior pituitary, in the authors' experience, occurs in people with a susceptibility for the killing diseases (heart disease, cancer, diabetes) this agent, even in minute amounts, is used sparingly. The tendency in endocrine therapy should be to underestimate the dosage.

Analysis of Figure 36

The outstanding physical characteristic of a person with a hyperfunctioning anterior pituitary is an inward curve between the midcalf of the leg and the knee, at the 3/4 circumferential measurement. The difference in the appearance of the graph (Fig. 36) at this point, compared with the previous graph (Fig. 35) will be readily discernible.

Results of Blood Test—Prior to administration of endocrine treatment, the blood test in this case showed a blood sugar 138, calcium 10.7, phosphorus 3.33, and cell volume 45.

Effects of Treatment—Daily use of 3 units of insulin for one week changed the blood picture quite radically: Blood sugar was 109, calcium 10.3, phosphorus 4, and the cell volume 45. Note that the blood sugar dropped 29 points and that the excess calcium was reduced 2 milligrams.

Blood Sugar Content Frequently High—This case illustrates the incidence of higher than normal blood sugar which is often encountered in people with hyperfunctioning anterior pituitary although medically they would not be classified as diabetic.

Insulin Used in Minute Amounts—Three to six units of insulin used to improve calcium-phosphorus blood levels in these cases seems to affect the blood sugar levels as well.

Effect of Insulin on Overactive Thyroid—In hyperfunctioning thyroid cases with normal blood sugar levels it is the authors' experience that the same minute amounts of insulin can be given to inhibit the overactive thyroid and improve calcium-phosphorus blood levels without lowering the blood sugar levels.

In an article in JAMA[3] it is stated: "Insulin, whether used in subcoma or in small tonic doses is a specific for the numerous every day nervous and physical complaints caused by habitual sympathetico-adrenal stimulation (prolonged alarm reaction)."

Analysis of Figure 37

A hyperfunctioning anterior pituitary (DD' line) may also respond to the use of hormones, as illustrated in Figure 37.

Blood Test—On the corrected diet the blood test shows blood sugar 100, calcium 9.6, phosphorus 2.38, hemoglobin 112, cell volume 47.7, blood pH 7.4, sedimentation rate 10.

Treatment—With one tablet of AD (an AD tablet contains what is estimated to be balanced amounts of both sex hormones in extremely minute quantities) the blood picture changed to the following: Blood sugar 100, calcium 9.8, phosphorus 2.66, hemoglobin 97, cell volume 42.8, blood pH 7.4, sedimentation rate 6. Excess

[3]Medical Literature Abstracts, JAMA 151:771 (Feb. 28) 1953.

calcium was reduced from 3.75 milligrams to 3 milligrams.

The pituitary is often called the "master gland" because of its influence on the growth and development of body tissues ("end-organs") and its stimulating power in "target glands" (thyroid, adrenals, gonads) through the action of tropic hormones.

As expressed by Wilkins:[4] "The anterior pituitary gland acts as a control center of the system, and in turn is subject to regulation through the nervous system and by the concentration of circulating hormones elaborated by the target glands. It is apparent, therefore, that *an alteration in one of the hormones affecting the body may be caused by a disorder arising in any of three centers of control: (1) the brain centers from which impulses pass to the pituitary, (2) the anterior pituitary, or (3) one of the "target glands"—thyroid, adrenal, or gonad.* In diagnosis it should always be remembered that the primary lesion which gives rise to a particular hormonal disturbance may be in any of these levels of control.

"Pituitary activities are regulated to a considerable degree by the blood concentrations of the hormones of the "target glands" [thyroid, adrenal, ovarian, testicular] and the pituitary may respond to some extent to alterations in the body chemistry which result from the excess or lack of these hormones."

[4]Wilkins, Lawson: The Diagnosis and Treatment of Endocrine Disorders in Childhood and Adoescence, Springfield, Illinois, Charles C Thomas, Publisher, 1950, pp. 11-15.

Summary

The cases described illustrate the following therapeutic points:

(1) Thyroid extract augments thyroid activity; insulin inhibits thyroid activity. *Insulin is the opponent of thyroid.*

(2) Posterior pituitary substance augments posterior pituitary activity. *Adrenal cortex is the opponent of the posterior pituitary substance.*

(3) Anterior pituitary substance augments anterior pituitary activity; insulin, or the sex hormones, inhibits anterior pituitary activity. *Insulin and the sex hormones are the opponents of anterior pituitary substance.*

Abbreviated Statement of Formula—If this formula is kept in mind the problems of treatment choice are minimized.

(1) *The thyroid is opposed by the insulin-producing cells in the pancreas.*

(2) *The posterior pituitary is opposed by the adrenal cortex.*

(3) *The anterior pituitary is opposed by either the insulin-producing cells in the pancreas or the sex hormones.*

Aids in Choice of Dosage—There are also several helpful clues in the matter of dosage:

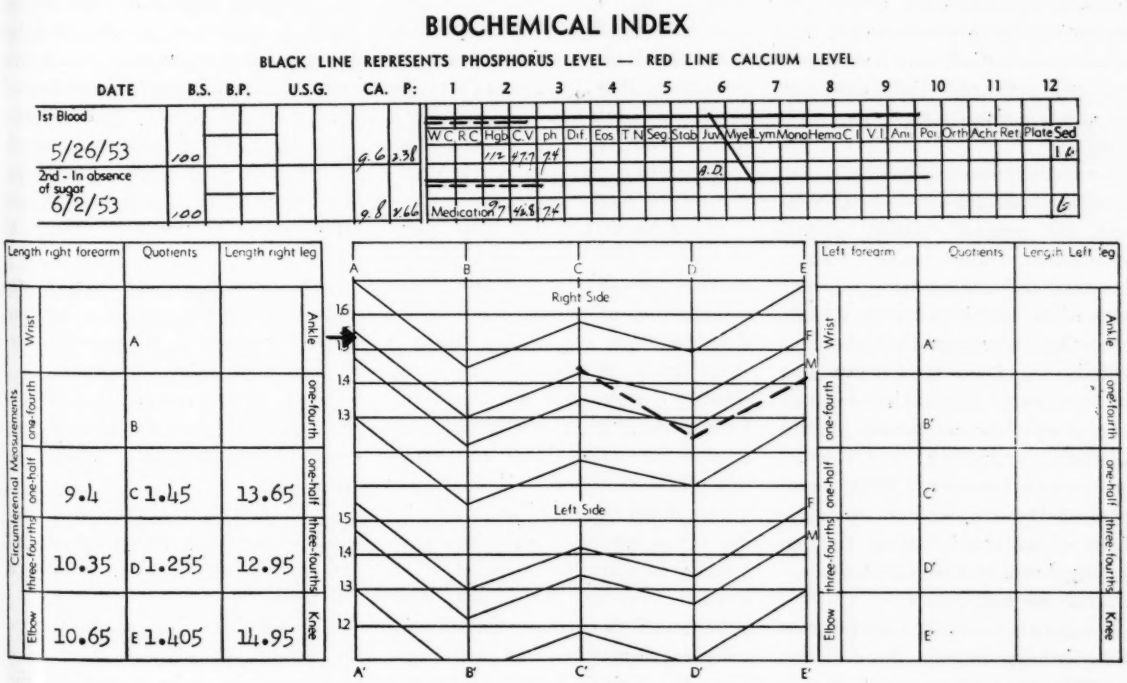
(1) Degree of graph divergence from normal: the greater the divergence the larger the dose (all dosage is minute).

(2) Age: the younger the patient, the smaller the dose.

(3) With insulin correlate the degree of activity of the thyroid and/or anterior pituitary with the blood sugar level.

(4) With posterior pituitary extract correlate the degree of deficiency with the blood pressure and the specific gravity of the urine.

(5) With anterior pituitary substance correlate the degree of deficiency of the blood sugar. It may be low and with treatment it will rise; but *always err on the side of underestimating dosage of this endocrine.*



Objective of Technique—The purpose of this treatment approach is to use endocrines to supplement the glands' own production *only to the extent of their limitation.* A weak gland is much like a sick person, it needs good food (building material), it needs rest, and it needs its production load lifted. The following measures are intended to provide these benefits:

(1) Correct the diet.

(2) Include all the nutritional essentials for strength, growth, and maintenance.

(3) Eliminate all things burdensome to glandular activity (primarily refined sugar).

(4) Supplement the gland's own production by adding some of its own extract.

Necessity for Moderation Emphasized—To give endocrines in amounts in excess of need or in excess of normal total production would defeat the purpose of this treatment technique. The objective is to increase the efficiency of body chemistry. Too large a dosage of endocrines would create as great a problem in chemical adjustment for the mechanism as an inadequate production on the part of the gland itself.

On the matter of dosage Gordan and Lisser write:[5] "Since hormonal agents are given to produce specific effects, it is usually possible to determine the proper dose for the particular patient by a 'clinical bioassay.' The usual procedure is to start with the dose which, in the physician's experience, is the smallest effective amount of the agent."

Established Norms Indicators of Response—Unfortunately, too little is known about the amount of daily production of hormones. The handicap of insufficient knowledge in this aspect of treatment can only be overcome by observing with meticulous care the response to endocrine treatment. All the indexes of efficient chemistry the norms of which have already been established can be used as indicators of progress.

(*End of Part Four*)

[5]Gordon, Gilbert S., and Lisser, H.: Endocrinology in Clinical Practice, Chicago, The Year Book Publishers, Inc., 1953, pp. 26-27.

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Medical Conditions Complicating Oral Surgery

BENJAMIN ELIASOPH, M.D.

Complications of Oral Surgery

The most important of the immediate emergencies encountered is shock or vasomotor collapse. A certain amount of psychic shock accompanies the mildest dental procedure and varies tremendously with each patient. The psychotic, the psychoneurotic, and the alcoholic patient may be cooperative and outwardly little disturbed but at other times almost impossible to treat.

Symptoms Noted—The cold, wet, clammy hands, the sudden pallor or flush, the general malaise, profuse perspiration, rapid pulse, nausea, faintness, or restlessness are symptoms often noted. Even in a mild form they interrupt the scheduled procedure and are time consuming and troublsome. The milder and more common episodes are usually psychic in origin, transitory, and readily amenable to treatment. Mild stimulants, such as whisky or aromatic spirits of ammonia, having the patient lie down, and words of encouragement are helpful.

This may occur in diabetic patients taking insulin, in rare cases of hyperinsulinism, and in some people who quickly metabolize their small reserve of glycogen. The mechanisms of the reactions in the first two varieties are better known but the third needs some clarification.

Glycogen Depletion—This usually occurs in active, slightly nervous people almost always at the end of the working day after they have been rushing to finish any business to keep their appointment with the dentist. Sometimes they forego lunch or the afternoon snack that they are accustomed to having. Apprehension about the operation may play a role in depleting the blood sugar.

Blood Sugar Lowered After Sweet Drinks—It has been shown that some nervous people, particularly those complaining of fatigue, may have a drop in blood sugar after taking a sweet drink. In that case the island cells of the pancreas are overstimulated. Atropin and phenobarbital may inhibit the vagal stimuli and arrest this process.

Symptoms Prolonged and Severe—The symptoms of hypoglycemia may become as alarming as those of an attack of coronary thrombosis. With a real attack of coronary thrombosis, however, there should be some chest pain. This pain is usually precordial and radiates, as a rule to the left shoulder and even down the arm. Radiations of pain to the neck and lower jaw, when present, are more likely to be found with organic disease in the heart or mediastinum.

Procedure Suspended—The presence of cyanosis, dyspnea, vomiting, and irregular pulse precludes further surgical operations for the time being and requires the help of a physician. Uncomplicated compensated cardiovalvular disease seldom gives rise to any difficulty. After an attack of acute rheumatic fever or chorea, it is advisable to wait as long as possible before completing surgery of any kind.

Patients with angina pectoris are fully aware of this condition and are usually prepared in advance and carry their medication with them.

Many oral surgeons follow the same procedure as the general surgeons in preparing their patients for operation:

1. They try to operate at a time when the patient is neither dehydrated and starved nor after he has taken a full meal.

2. Some make it a practice to give the patient an adequate dose of a barbiturate in order to achieve the

(*Continued on page* 568)

TERRAMYCIN

Used in Endodontic Cases

HARRY MAETH, D.D.S., Mosinee, Wisconsin

DIGEST

The history of the management of two root canal cases which were complicated with fulminating facial cellulitis of dental origin, followed by considerable suppuration, is described. In the past the author has occasionally extracted teeth in such condition, considering them hopeless for treatment.

In the cases reported in this article the antibiotic, terramycin, was employed as the exclusive therapeutic agent to control the acute inflammatory process, to sterilize the pulp canals, and as a topical postoperative dressing in the surgical wound area of root-end debridement.

Considerations in Endodontic Therapy

Endodontic therapy may be viewed as based upon radiographic, bacteriologic, and pathologic conclusions. To the specialist in endodontia, each of these considerations has been a link in the chain of his treatment.

Helpful in General Practice—To the general practitioner the radiograph offers information, although limited. Accurate bacteriologic determinations, however, and histopathologic studies are infrequently feasible or possible.

Many Possibilities in Treatment—The properties and limitations of certain therapeutic agents are well known to those practitioners with long experience in endodontic problems. Here again, however, the general practitioner is confronted with many theories and recommendations for treatment with chemotherapeutic agents; and more recently the antibiotics are available.

Case One

The patient in this case was a white female, age 18 years.

Symptoms—1. When first seen, August 1, 1952, swelling was present on the right side of the face, extending to the upper lip, cheek, and infraorbital area.

2. The temperature was 100.4° Fahrenheit.

Results of X-ray Examination—An extensive radiolucent area was revealed about the apex of the maxillary right central tooth, extending to the area of the root of the adjoining lateral incisor tooth. The lateral incisor responded normally to the pulp test while the central incisor did not.

Treatment—1. Terramycin, 500 milligrams, was administered orally as the initial dose, followed with 250 milligrams every five hours for the next three days.

2. August 4, 1952, dosage of terramycin orally was reduced to 250 milligrams every six hours.

3. Degenerated pulp of the maxillary right central incisor was removed. The labial mucosa was incised at this site to establish drainage.

4. The pulp canal was irrigated with a solution of terramycin made from a tablet dissolved in distilled water. A cotton point saturated with the aqueous solution of terramycin was sealed in the root canal.

5. Terramycin cones were placed in the periapical incised area. A rubber dam drain was inserted.

6. August 6, 1952, treatment of terramycin was changed in the root canal. Terramycin medication was inserted into the surgical wound area.

7. On August 9, because of recurrent swelling at the labial aspect the incised area was opened wider for more adequate drainage.

8. Terramycin orally was continued, 250 milligrams every six hours. Drainage was maintained with a rubber dam drain.

9. August 12, 1952, the root canal was filled with a mixture of terramycin dissolved in beechwood creosote, combined with zinc oxide, and reinforced with fiberglas (hammermilled form). The necrotic soft tissue lesion was removed from the involved periapical area. The wound was sutured.

Histopathologic Report—The following report Number 12417 of the periapical tissue was made August 14, 1952 by the Laboratory of the Wisconsin State Board of Health, and signed by W. D. Stovall, M.D., and Gordon Worley, M.D.:

"Inflammatory tissue reaction. An epithelial lining of a cyst is not

found in the specimen submitted. No evidence of malignancy."

Case Two

In this case the patient was a white female, age 34 years.

Symptoms—When first seen, October 3, 1952, swelling on the right side of the face was present extending from the lip to the cheek and the infraorbital area. The temperature was 99.6° Fahrenheit. Considerable pain was experienced.

X-ray Examination—A large radiolucent area about the apex of the maxillary right lateral incisor, suggested a rarefying osteitis.

Treatment—1. Terramycin was administered orally, 500 milligrams followed with 250 milligrams every six hours. Swelling and pain subsided in less than twenty-four hours.

2. The pulp was removed October 3, 1952, and the root canal was treated with terrramycin (soluble tablet) dissolved in sterile water. Terramycin was carried on a saturated cotton point to the root canal and sealed within.

3. Treatment to the root canal was changed the following day. Terramycin was continued orally, 250 milligrams every six hours.

4. October 7, 1952, treatment to the root canal was changed. Terramycin was continued orally, 250 milligrams every six hours. The same treatment was administered October 9 and October 11.

5. On November 11, 1952 after illness of the patient the treatment of October 11 was found intact. At this time the root canal was filled with a mixture of terramycin dissolved in beechwood creosote, combined with zinc oxide, and reinforced with fiber-

Case One

1. ***August 1, 1952, preoperative condition.***

2. ***August 12, 1952, postoperative condition.***

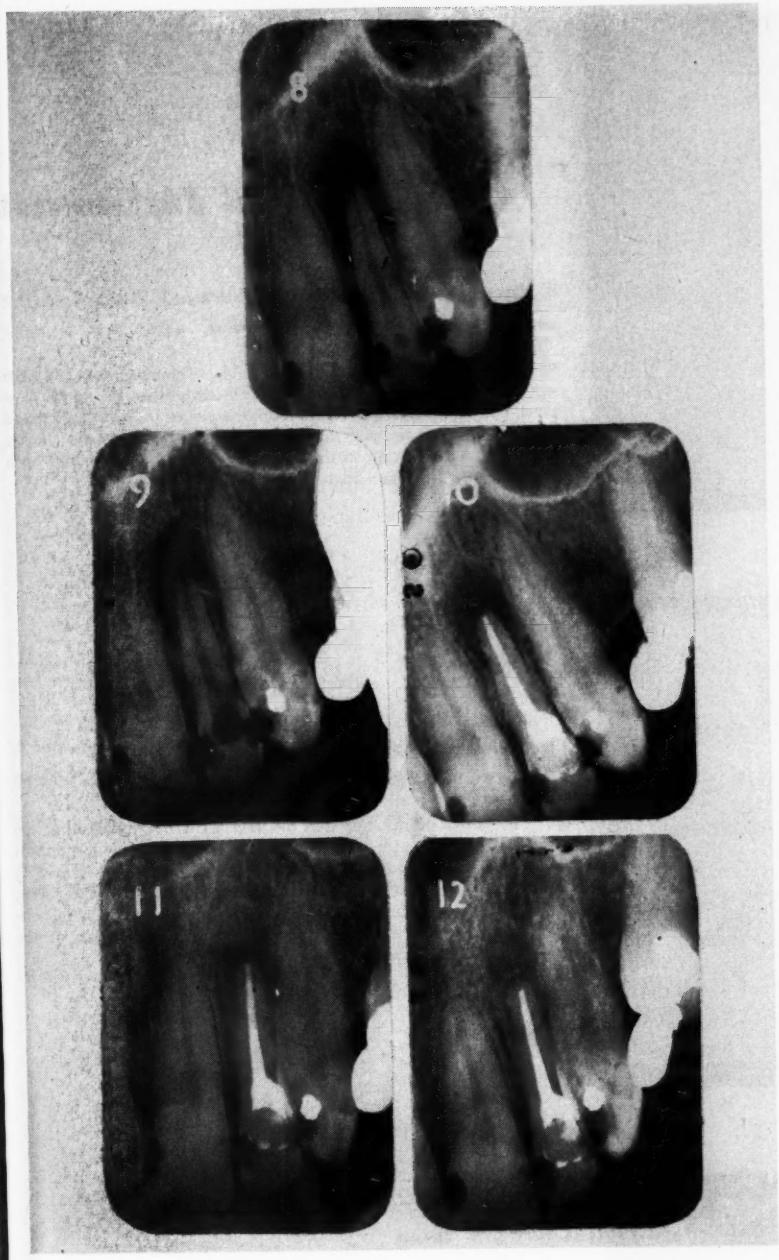
3. ***November 27, 1952, postoperative.***

4. ***December 23, 1952, postoperative.***

5. ***January 3, 1953, postoperative.***

6. ***February 1, 1953, postoperative.***

7. ***April 4, 1953, postoperative.***



Case Two

8. *October 3, 1952, preoperative condition.*

9. *October 11, 1952, during treatment. The canal is ready for filling.*

10. *November 1, 1952, the root canal filled.*

11. *February 8, 1953, postoperative.*

12. *April 3, 1953, postoperative.*

glas (hammermilled form). The necrotic tissue mass at the involved periapical site was extirpated and the wound was sutured.

Terramycin Successful in Therapy

1. It should be noted that after terramycin was administered orally the acute stage in both cases subsided rapidly.

2. It is important to realize that terramycin probably inhibited and controlled the process of infection which was responsible for (1) the acute inflammation, (2) the rarefying osteitis, and (3) the degenerated pulp tissue.

3. No other therapeutic agent was applied during the entire course of treatment in both cases. (The beechwood creosote was used as the vehicle for the zinc oxide canal filling mass.)

Other Uses—Recent controlled hospital studies indicate the effectiveness of terramycin as the exclusive medication for the management of cellulitis of the face of dental origin.[1]

Adjunct to Surgical Treatment—1. Terramycin has been investigated as an adjunct to surgical treatment where early diagnosis and prompt surgical intervention is made.[2]

2. Terramycin is effective against gram-positive and gram-negative organisms, and mixed infections.[3]

3. An increase in the incidence of penicillin-resistant strains of staphylococcus aureus has been observed during the past few years.[4] This situation would suggest the advisability of using terramycin for topical and systemic therapy in a surgical infection, such as one which accompanies an involved dental pulp.

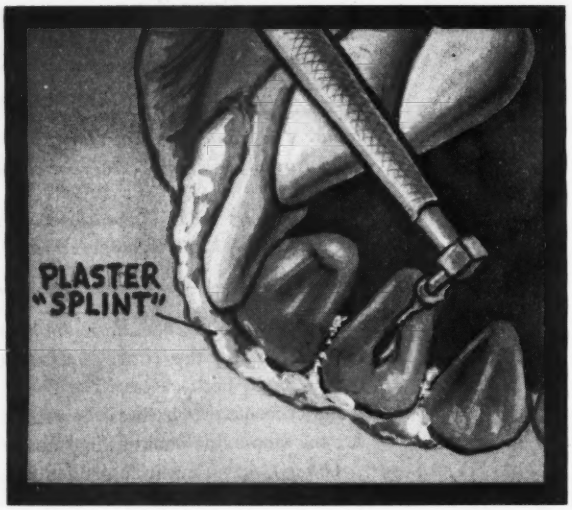
Prognosis

The prognosis of the two root therapy cases reported here is apparently hopeful. From a purely clinical standpoint it appears advisable to follow a course of therapy which assures definite progress.[5]

Mosinee, Wisconsin.

[1]Pollock, S. L., and Archer, W. H.: Terramycin in Dentistry, Pennsylvania State D. J. **20**:No. 3 (March) 1953.
[2]Welch, H., and Lewis, C. N.: Antibiotic Therapy, Washington, D.C., The Arundel Press, Inc., 1951, chap. 15 p. 349.
[3]Welch H., and Lewis, C. N.: Antibiotic Therapy, ibid., p. 352.
[4]Ibid.
[5]Personal communication from William Ward Wainwright, D.D.S., University of Illinois, College of Dentistry, 1952.

Clinical and Laborator

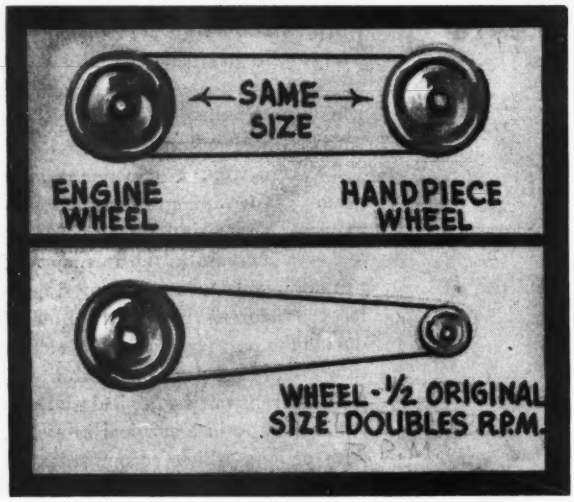


1

A Plaster Splint for Putrescent Pulps

Leo O. Beldo, D.D.S., Marquette, Michigan

1. When opening into the pulp chamber of a putrescent pulp the tooth is usually tender and painful. To immobilize the tooth, flow some fairly thick plaster on the labial surfaces including the teeth on each side of the one being operated upon. After the plaster has set, apply finger pressure on the labial of the splint and open into the pulp from the lingual.



2

Increasing the Rotating Speed of a Bur

I. B. Hyams, D.D.S., Montreal

2. The RPM of the bur may be increased by diminishing the circumference of the handpiece wheel. The speed will be doubled by reducing the circumference by one-half. Attach the wheel to a lathe on a universal chuck having previously removed the screw. Holding a rattail file against the revolving wheel, reduce the circumference of the wheel by one-half. Reduce the length of the screw and reassemble.

3

A Sure-grip Sprue

H. H. Look, D.D.S., Denver

3. A used Number 35 or Number 37 inverted cone bur is used as a sprue for wax patterns. The embedded inverted cone bur in the wax permits removal of the pattern without danger of the sprue and pattern separating.

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For every practical clinical or laboratory suggestion that is usable, DENTAL DIGEST will pay $10.00 on publication.

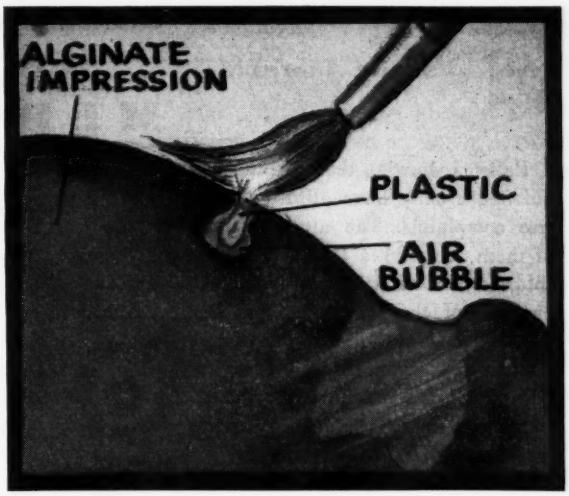
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Patching an Alginate Impression

Harold S. Jones, D.D.S., Allentown, Pennsylvania

4. To correct an air bubble in an alginate impression, fill the void with any acrylic liner or self-curing restorative material by using the brush technique. The alginate impression should be dry before the correction is made.

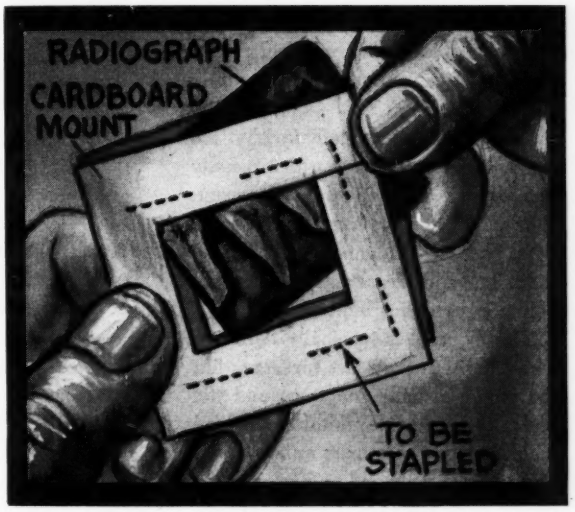


4

A Simple Mount for X-rays

Daniel F. Tobin, D.D.S., New York

5. It is desirable at times to take x-rays and either project them by using a 2-by-2 projection machine or by placing them on a table enlarger. A convenient mount may be made by using two 2-by-2 pieces of thin cardboard stapled on three sides with the fourth side open. The windows are cut before assembling.

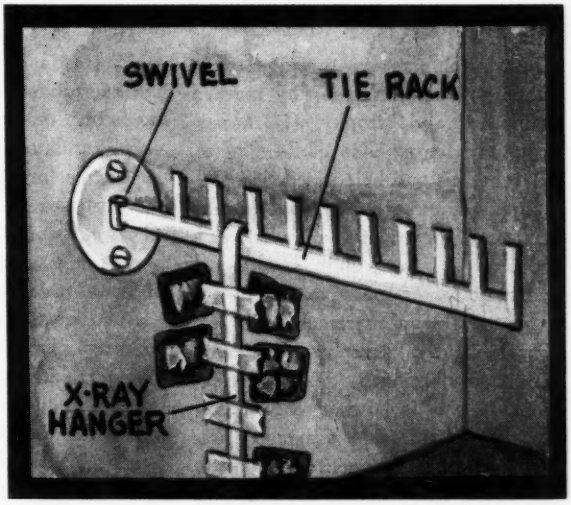


5

A Hanger for X-ray Films

S. Joseph Bregstein, D.D.S., Brooklyn, New York

6. A chrome tie rack with a swivel joint is used. This is useful for hanging x-ray films on the racks for drying. The tie rack can be attached to the wall in the processing room and when not in use it will lie flat against the wall.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 558 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

MEDICINE and the Biologic Sciences

Senile Anorexia

Patients showing the infirmities of old age usually have diffuse subjective complaints. The most common of these are: (1) a tendency to feel cold, (2) a distaste for living, (3) burning of the tongue, (4) a dry mouth, (5) loss of taste, and (6) difficulty of swallowing.

In many patients there is a notable lack of activity. Patients may spend their days lying in bed or sitting in a chair, apathetic, often without any initiative whatever, even with regard to eating or keeping clean.

The nutritional status varies. At times there may be remnants of previous obesity, but more often the patient is emaciated, more rarely cachectic. The skin is pale, more so than can be accounted for by the hemoglobin percentage which usually ranges between 70 to 85 per cent. X-ray films of the vertebral column often reveal osteomalacia. Chronic diarrhea and recurrent pyuria are common complications.

The course is typically chronic. The condition may last for years but the stupor usually increases and the patients develop decubital ulcers and incontinence of urine and feces. Prognosis is poor and patients seldom regain their strength if left untreated.

The debility is associated with a group of symptoms not found in active persons, even if they have attained an extremely advanced age. These symptoms are those noted in glossitis; for example, (1) marked reddening and atrophy, (2) hypertrophy of the papillae of the tongue, (3) cheilitis and bright red lips, (4) desquamation of the skin in the angles of the mouth, and (5) perleche.

Symptoms of nutritive failure are common among extremely old persons living by themselves. The daily food consumption is definitely deficient. It is believed that senile debility may be caused by a primary disturbance of the appetite regulation associated with various medical and

psychologic factors which are peculiar to old age. These factors tend to reduce both the quantity and quality of the food consumed.

Vinther-Paulsen, N.: Senile Anorexia, Geriatrics **7**:274-279 *(September-October)* 1952.

Sciatica

The term is used to designate pain which begins in the back; namely, the sacroiliac region. The pain extends into the buttocks, the posterior or posterolateral aspect of the thigh at least as far as the knee, often into the posterior or posterolateral aspect of the calf and ankle (either or both) and even out into the foot. The disorder is quite common.

Anatomically the cause lies in one of three places: (1) in the sciatic nerve, (2) in the lumbosacral plexus, or (3) in the nerve roots that ultimately make up the sciatic nerve; the fourth and fifth lumbar, and the first sacral nerve roots. The symptoms of 80 per cent or more of all patients who have sciatica are attributable to nerve root lesions.

The nerve root lesion is sometimes referred to as "radiculitis." This implies that one of the radicals or nerve roots is being irritated by some pathologic process. A number of disease entities can produce a nerve root lesion. The most common of these is a protruded intervertebral disc. About 90 per cent of all lumbar and upper sacral nerve root lesions are attributable to protruded intervertebral discs.

Other disorders that can cause such lesions are (1) spondyolisthesis, (2) tuberculosis with Pott's disease, (3) osteomyelitis, (4) primary and metastatic neoplasm, (5) epidural abscess, and (6) diabetes.

Usually there are two components to the pain: 1. More or less constant aching, burning discomfort with stiffness low in the back continuing along the course of the sciatic nerve. The pain extends to the knee. 2. Increased severity of the pain which extends or travels inferiorly into the thigh, past the knee into the calf, and sometimes into the foot and toe. This shooting pain is almost always present during an exacerbation of the disorder.

Treatment depends on the etiology. A neoplasm in the thigh pressing on the sciatic nerve should be removed. If there is a metabolic dysfunction it should be corrected. Diabetes should be controlled. Vasodilators should be given in case there appear to be some vasospastic phenomena. When malignancy attacks the lumbosacral plexus in the pelvis about all that can be done is in the form of palliation.

The protruded intervertebral disc must either be left in or taken out. About three-fourths of the patients receive a satisfactory result from surgery. Few patients who have protruded intervertebral discs ever ultimately have a completely normal back which will stand any kind of punishment. This fact should be realized early by each patient.

Millikan, Clark H.: Causes and Treatment of Sciatica, Postgrad. Med. **12**:207-211 *(September)* 1952.

Lobotomy—Present Status

Prefrontal lobotomy is effective therapy in severe cases of schizophrenia, especially when the patient is obstreperous, anorexic, and restless. Persons with the following symptoms: (1) anxiety neuroses, (2) obsessive tension states, (3) depersonalization syndromes, (4) agitated depressions, and (5) chronic pain with or without organic basis, obtain relief from the operation.

An active and conscientious lobotomy program can transform a mental institution into an old people's home.

Hyperactive subjects show remarkable reduction in disturbed and disturbing behavior after lobotomy. These patients may not be able to adjust to conditions outside the hospital. Their relations with other patients, however, are much improved and simple duties can be performed. The operation often brings relief of suffering, loss of fear, and therefore loss of hate.

The patient who is able to live at home or even work may not gain from the operation. He may become idle, outspoken, tactless, and irresponsible. Lobotomy is not advisable for these better preserved patients.

The operation must be extensive enough to control the symptoms. If it is too extensive it is ruinous. Conservative operations are better than extensive ones in the following situations: (1) elderly people, (2) severe painful conditions, (3) psychoneurosis, and (4) agitated depression.

Lobotomy should be avoided in cases of (1) alcoholism, (2) drug addiction, except in pain conditions, (3) criminal psychopathy, and (4) organic brain disease except parkinsonian and thalamic syndromes.

Primarily, lobotomy will reduce painful effect and eliminate dread and tortured self-concern. The more anxiety the patient had before the operation, the more dramatic the improvement. Depression, with a fear of the future based on fancied past misdeeds, yields magically.

Most patients with (1) delusions, (2) phobias, (3) conversion reactions, (4) obsessions, and (5) many psychosomatic complaints are helped. Those with hallucinations may benefit early in the disease, but effectiveness of the procedure lessens as the symptom continues.

Cases of early schizophrenia do well with lobotomy. However, many of these patients are seen only after weeks or months of other therapy including electroshock, which may cloud the symptoms and conceal the advance of deterioration.

A six-month's trial of conservative care in an institution should be assayed before considering surgery. Decision should be made soon thereafter. After a year in the hospital the chances for recovery rapidly diminish.

———

Freeman, Walter: Present Status of Lobotomy, Virginia M. Monthly **79**:436-439 *(August)* 1952.

Tetanus

Tetanus is one of the greatest hazards of wounds. It is sound practice to assume that any open wound resulting from trauma is vulnerable to tetanus infection. Such a wound should be an indication for a booster dose of toxoid or prophylactic antitoxin.

In the United States Army active immunization with tetanus toxoid is considered effective for four years. Booster doses given at the time of injury provide a prompt increase in circulating antibodies.

The alum-precipitated toxoid is slowly released from the site of deposition. Immunization is completed with two injections at intervals of from four to six weeks. The fluid toxoid is more rapidly absorbed, is less apt to produce cold abscesses, and is given as a series of three injections at intervals of four weeks.

Passive immunization with tetanus antitoxin is less certain and less effective and lasting than active immunization. Use of tetanus antitoxin is usually limited to two situations: (1) Treatment for clinical tetanus, and (2) occurrence of wounds or burns necessitating protection against tetanus in patients who have not been previously immunized or who have not completed initial active tetanus immunization.

The prophylactic dose for adults is 3,000 units in treatment for clinical tetanus. If the patient is treated one or two days after injury, the prophylactic dose should be increased to 10,000 to 20,000 units. The duration of passive immunity induced thereby is five to ten days. If the wound is not clean by this time, further passive immunization is indicated.

When a diagnosis of tetanus has been determined and preliminary testing for sensitivity to horse serum has been done, tetanus antitoxin is given. Fifty thousand to 100,000 units intramuscularly constitute a dose large enough to neutralize all the unfixed or free toxin in any patient who has a chance for recovery. From 10,000 to 20,000 units intramuscularly are administered for the following four or five days also. Appropriate antibiotic therapy is also indicated.

———

Pulaski, Edwin J.: Antiseptics, Antitoxins and Antibiotics, Mod. Med. **20**:84-90 *(September 1)* 1952.

This is a Human Body

IN 1928 STUDIES were being made from the point of view that a human being is a product of the air he breathes, the water he drinks, and the food he eats; day after day, year after year, the tissues of the human body are replaced by intricate combinations of oxygen, water, and food. Today this is a medical axiom, and physicians have gone a long way toward showing that disease is chemical and chemically correctable.

—Tom D. Spies, M.D.: JAMA **153**:185-193 (Sept. 19) 1953.

The EDITOR'S *Page*

"In this age of addition, if anything is wrong with a patient that is not fully understood the tendency is to seek the cause not among the harmful things that may be present but among the 'good' things that may be absent. And so one supplement after another is added. The scientific possibility of *subtraction* apparently has occurred to no one."

This quotation is from the important work of Charles Dillon, D.D.S., L.D.S.[1] of Scotland and is a profound observation of present trends in therapy. Let us look around us and see how accurate this observation is. To mind come the additives: vitamins for deficiencies in food, antibiotics to counteract bacterial activity, the fluorides to reduce dental caries.

It is easier and more lucrative to prescribe the addition of something than to advise the subtraction of something. For example, in the field of nutrition, it is simpler for the dentist and the physician to suggest the ingestion of the synthetic vitamin products than it is to advise a complete change in dietary habits by the removal of noxious foodstuffs such as refined sugar and white flour. Entirely within the field of economics it is more acceptable to the patient to be given a positive suggestion and a prescription to *take* something than it is to be told to refrain from acts of eating that are pleasurable. People are more disposed to take a pill or any other form of medication and believe in its magic than they are to discipline themselves to forego an experience.

The antibiotics, boons to mankind that they are, have blunted the zeal for accurate diagnosis. When a person complains of malaise, or pains, or disturbances of any function he is given an antibiotic. When the body temperature is elevated slightly, or when the white blood cell count is increased, he is given an antibiotic. When gums are inflamed or bleeding, when irritation appears in the residual dental ridges, the patient is given an antibiotic. Each one of these procedures represents sloppy diagnosis and "shotgun" therapy.

Fluoridation is certainly an example of the addition of a chemical to control a dental disease the nature of which we do not fully understand. The presumption is that by some process not altogether clear in our minds the structural resistance of the tooth can be improved to better withstand the assaults of bacteria on the carbohydrates that produce lactic acid. Although we know that the caries rate may be reduced by the *subtraction* of the sugar available for degradation and acid formation, we also know that this discipline is not readily accepted by patients. People would much prefer to receive *additive* chemicals in painless doses in their drinking water and continue to use sugar without *subtractive* limitations.

It is regrettable that the subject of fluoridation has lost scientific objectivity and that so much emotion has been engendered. This is not a subject to be treated with passion. Instead it requires scientific detachment. Not so much "pro" and "anti" as "how" and "why."

We have not made clear enough to the public that *reduction* in the caries incidence is different from *prevention* of caries. We must prepare the public for this fact. Dillon uses these words to describe this:

"If lactic-acid fermentation is going on actively in the oral cavity it matters not whether the teeth are well calcified or poorly calcified, or whether 'hardened' by fluorides; it is only a question of time and the rate of acid fermentation, before the inorganic superstructure is breached, permitting the microbes to enter the basic organic structure, and from then on the process is one of progressive protein hydrolization, and the only way to inhibit it is to find some safe way of controlling fermentation."

Fluoridation is not a panacea or a total preventive. At best it is a valuable agent to reduce the caries rate; at the worst, it is a cumulative toxic agent. Time will expose the answer.

---

[1]Dillon, Charles: Fluorine and Dental Caries, Dental Practitioner 3: No. 3, 79-86 (Nov.) 1952.

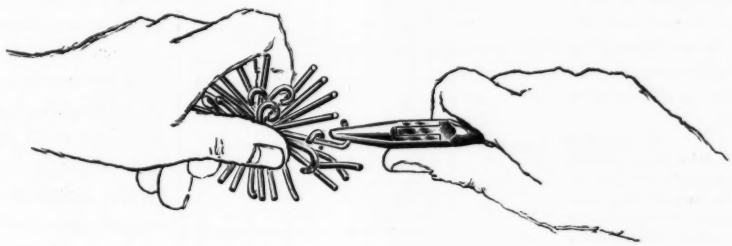
Annual Index–1953

Miscellaneous

Operative Dentistry

Oral Pathology

Oral Surgery



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Contra-Angles

Two Views on Nutrition

An example of divergent basic philosophies is expressed in two points of view on nutrition, one by an American scientist, the other in a discussion by members of the British House of Lords. The American is the scientific director of the Nutrition Foundation which is a group organized and richly subsidized by some of the largest manufacturers and processors of food. This point of view emphasizes nutritional surveys, research grants, and technologic developments to improve nutrition. The talks in the House of Lords were on a less exalted scientific level and were concerned with the potential dangers in processed and chemically treated foods. Here the desire expressed was: "To increase the availability of fresh foods for the people."

The American point of view, as stated by Charles Glen King, is in part as follows:

"From a food supply point of view, we in the United States are exceedingly fortunate. We have available enough of all the nutrients to furnish an ideal diet for the entire population, plus a reserve quantity for export. Nearly everyone has access to a 'free' education. Economic resources and transportation facilities are adequate to reach nearly everyone. Protection of food supplies by industry and by public law has set a high standard for several decades; and the foods available in our markets are as attractive and flavorsome as one could find anywhere. Yet we face such records as these:

"1. Apparently only about one-fourth of our population consumes a diet that well-trained scientists regard as good or excellent.

"2. At the opposite end of the picture, we have about 20 million or

more people who shorten their lives, handicap their health and bring on many of our most destructive diseases by consistently eating and drinking too much—that is, they consume too many calories. It is socially, medically, mathematically and anatomically correct to insist that these figures should be reduced!

"3. The incidence of tooth decay, most of which could be prevented by good nutrition, is extremely high. Although conditions are at last improving, most communities show an incidence of tooth decay (i.e., a record of one or more decayed, filled or missing teeth) in the range of 75 to 95 per cent of the population by the time adolescence is reached.

"4. The infant and maternal death rates are excellent compared with other countries, but most medical authorities agree that the record could be improved markedly by good nutrition. (We should have more counties reaching the Westchester County, New York, record of last year—reported as 'not a single instance of maternal death' in a county whose population is well over 600,000.)

"5. The top four causes of death in the United States—heart disease, cancer, cerebral hemorrhage and diseases of the new-born, and many of the diseases below fifth place (influenza and pneumonia) are metabolic, rather than infectious in nature. The instances of hypertension and gastric ulcers at meetings of Corporation Boards of Directors are too frequent for our comfort and economic advantage. These diseases are, on an experimental basis at least, subject to partial prevention and favorable therapy by means of good diets.

"6. Although we have not had recent adequate surveys of the nutritional status of our population, such data as we have, support the conclusions based on food habits, that low intakes of protective foods which furnish liberal quantities of vitamins, minerals and good quality proteins, are inexcusably common. The public, largely through ignorance and negligence, does not make intelligent use of the excellent food that is available. Our three worst enemies in the field

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 548 *and* 549)

Form to be Used by Contributors To: Clinical and Laboratory Suggestions Editor

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Subject: _____

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of nutrition are first, complacency; second, delays in developing adequate programs of basic and applied research; and third, failure to develop adequate education.

"Practical goals that we could reach within the next ten years are of major importance in the health, economy, and total strength of the nation. We could accomplish:

"(1) A sharp decrease in the death rate from heart disease, hardening of the arteries, high blood pressure, cerebral hemorrhage, diabetes, and liver disease, plus a lower incidence of cancer. This result would be reflected in an extension of the years of vigorous living—by deferred aging—not simply by added years of survival.

"(2) A steady lowering in the maternal and infant death rate. The reproductive cycle represents a normal physiologic stage of life, but it does impose a requirement for a higher level of nutrition than is required of adults at other times.

"(3) The incidence of tooth decay

should drop to only five or ten per cent of the present level. About half the goal can be reached by fluoridation of water supplies, the balance chiefly by improved total nutrition.

"(4) The day-to-day level of mental and physical performance of our population would rise sharply by avoiding the transitory periods of low efficiency that result from poor food practices, such as omitting breakfast or lunch, and stuffing at other meals.

"(5) Thyroid gland enlargements or goiter caused by low iodine intake should completely disappear, along with scurvy, rickets, pellagra, nutritional anemia, subclinical beriberi and other diseases caused by specific deficiencies. Iodized salt, citrus fruits and juices, vitamin D milk, green leafy and yellow vegetables, enriched cereals, and meat are major factors in accomplishing these advances.

"(6) The diseases associated with glandular failure, such as arthritis and many nervous disorders, should decrease markedly as a direct result of balanced diets. In this area of public health, we are in the most poorly defined of all the fields mentioned. These gains are available at levels of nutrition well above the intakes that cause so-called deficiency diseases. Their continued study represents one of the most urgent and critical areas of nutrition research."

This is the debate in the House of Lords as reported by the *British Medical Journal:*

"In the House of Lords on June 10 Lord Teviot drew attention to the high percentage of processed and chemically treated foods now consumed, and asked the Government to do everything possible to increase the availability of fresh food for the people. The report of the Ministry of Health covering the period from April, 1950, to December, 1951, stressed an increase in cases of dysentery and a lack of progress in reducing the stillbirth rate. The figures concerning cancer were deplorable and showed a marked increase. Outbreaks of food-poisoning in 1951 were greater in proportion where canned and processed food were consumed. He mentioned the case of a woman who was never well and who was eventually discovered to be suffering from agene poisoning. In nearly every hotel one saw an automatic slot machine with stomach powders, aspirin tablets, and purgatives. Properly fed people did not need these drugs. Far too many people were making fortunes out of tampering with natural food and too many making vast sums out of the antidotes for bad food.

"Lord Hankey said the desire for white bread had caused adulteration of food for 200 years. Parliament between 1750 and 1800 had tried to foster the sale of a standard bread containing more bran, cheaper and more wholesome, but people clung to the adulterated white bread. When the use of steel rollers replaced the old grindstones, and robbed flour of essential vitamins and material, the dangers were only discovered some 50 years later. In spite of the improvement inaugurated during the war by Lord Woolton, the country today, Lord Hankey feared, was drifting back towards 'poverty bread.' In 1946 Sir Edward Mellanby published the fact that dogs fed on flour con-

STALITE NEWS LETTER

* * items of general interest about new materials * *
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NO. 3 DECEMBER, 1953

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Our company is fortunate to receive and at all times ready to acknowledge the valuable cooperation of so many members of the profession and its technicians in its program of developing new materials for Dentistry. The "STA-TIC" material was made possible through this program of participation of each branch of Dentistry. To the many doctors and technicians who participated—our sincere thanks.

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In more than 1,100 replies to our survey questionnaire, 850 indicated our Direct Message as a choice for news about new materials we prepare. High ratings, too, were given to the major dental publications—and advertising is now carried in most of these. The survey had as its purpose the collection of data to guide our company in merchandising its new materials. It is gratifying to find that our Direct Messages are so well received. Perhaps the way we write them attracts attention. We are inclined to believe, however, that the facts themselves make interesting reading—for they are about some significant changes taking place in Dentistry.

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taining agene suffered nervous disorders, canine hysteria, and eventually death (*British Medical Journal*, December 14, 1946, p. 885).

"The Governments of the United States and Canada then made the use of this flour a penal offense, but both permitted the use of another 'improver'—chlorine dioxide. In 1950 the British Government at last decided to ban agene, but to permit chlorine dioxide. The Government gave warning that it would take a long time to provide the latter substance. Today, seven years after Professor Mellanby's warning, the discredited agene was still in use and chlorine dioxide was suspect. On March 21, 1953, the *Lancet* had published a paper by Drs. G. C. Sheldon and Allan Yorke which described observations over many months in the case of a woman afflicted with skin disorders associated with loss of appetite and mental depression. Their evidence was that chemically treated flour was the cause. Nitrogen chloride—agene—was the original cause of the trouble, but chlorine dioxide was found to produce the same symptoms. Of eighteen nations in Europe and North America, nine permitted the use of agene and nine banned it. In France it was not used, and there had been nothing to compare with the great increase which had occurred in Britain in coronary thrombosis.

"Lord Horder said that Lord Hankey has asked about the increase in coronary thrombosis. Lord Horder wished that he knew what it was due to. He remarked that in New Zealand agene had never been used in preparation of bread, yet the incidence of coronary thrombosis was exactly comparable with its incidence in this country. He had not been convinced that agene produced any illness in human beings. If a man lived to be 160 he might by then begin to show some of the signs which dogs showed, because by then he would have had as much agene as Mellanby gave his dogs. He had yet to see a type of human illness analogous to canine hysteria in dogs. Therefore he believed the Government was wise in not being hustled over this question.

"Lord Boyd-Orr said there was a remarkable improvement in the health of women and children in this country compared with the years before the war. He had great faith in the Ministry of Health and the Medical Research Council, and he believed they kept all the necessary factors in view. He was not alarmed by some of the things which had been said that day.

"Lord Douglas of Barloch said it had been proved that agene combined with some elements in the protein of the wheat and formed a definitely poisonous compound. He would like to see a prohibition against the substitution of artificial substances for natural foodstuffs.

"Lord Hessel said the milling industry wishes to follow official recommendations on improvers, and awaited the results of research which was being carried out by the Ministry of Health and the Medical Research Council. The industry was confident that agene was in no way injurious to the health of the people.

"Lord Carrington said that the Gov-

ernment agreed with Lord Teviot about the importance of producing more fresh food. It had been decided to abandon the use of agene as soon as a suitable substance could be found, but the evidence did not justify the Government preventing the use of agene without knowing the effects of the substitutes which could be used . . . Joint investigations into the various alternatives were being carried out by the Ministries of Food and Health and the Medical Research Council in collaboration with research associations of the milling and baking industry. Difficult problems were involved, and the Government could not expect a quick answer to them. The makers of whiter flour would be required to restore the same amounts of the main nutrients as were present in 80 per cent extraction flour. Iron, vitamin B, and nicotinic acid would be put back."

American ingenuity and technologic resourcefulness have given us "enriched cereal products, prepared frozen foods, baby and junior foods, nonfat milk products, fortified and colored margarine, ready-mixed baking and dessert items, and shortenings, low-salt and low-calorie canned foods, and fluoridized water." No one can disagree that these developments have broadened our food choices and have simplified life for housewives. *It is yet to be proved if these conveniences and palatable foods are without exception blessings to our health and well-being.*

The British have not been renowned for their cuisine or their robust health. They certainly do not have the fancy food selections and conveniences that American technologists have created. Our common enemy, the Russian, is unaccustomed to chemically treated and processed foods such as we Americans enjoy and they have not been undermined by excesses of sugar and white flour as have our British friends and ourselves. Carloads of refined sugar, white flour, and soft drinks might destroy our Russian enemy as effectively as white man's foods and habits destroyed the American Indian.

—E.J.R.

Physiologic and Neurologic Occlusion

Natural Occlusal Movements

The teeth that make up the dental organ are important factors in the process of digestion, although, strange as it may seem, there is little or no occlusal contact between the upper and lower teeth during mastication.

There are a great many vertical movements, however, that do make contact with the upper teeth when food is not present in the mouth: (1) closing into centric, (2) closing at the conclusion of the swallowing function, (3) many minor cyclic movements unconsciously performed during the day.

Final Testing in Mouth—Because the closing and the cyclic movements are the physiologic occlusal movements of the dental organ, they are the mandibular movements that

should be used for establishing occlusion whenever these surfaces are restored or when the natural cusps need to be conformed to such movements. Adjustable articulators may be used for approximating the closing movements, but the final testing should be made in the mouth.

Detection of Premature Contacts—Premature contacts are detected by placing a thin wafer of wax between the upper and lower occlusal surfaces and asking the patient to perform chewing movements. A perforation in the wax indicates a premature contact. All occlusal restorations and replacements should be tested for premature contacts by the direct method after they have been placed in the mouth and regularly thereafter in order to maintain proper occlusion.

Abnormal Movements of the Mandible

One of the outlets for persons with symptoms of nervous hypertension is the neurologic occlusion of grinding the teeth. These movements are recognized as abnormal movements of the mandible by dental physiologists, and therefore should not be used for conforming the occlusal surfaces of every replacement or restoration.

Adjustment to Abnormal Movements—In the case of highly nervous people who may perform grinding movements for several hours at a time, or at night, occlusal surfaces should be adjusted to these abnormal movements. Meticulous care must be exercised and every effort made to have the occlusion so free that the patient will be unable to find the slightest high spot to focus occlusal neurosis.

Direct Method for Reducing Premature Contacts—Unlike the vertical physiologic movements, these lateral neurologic movements are in a general horizontal direction so that when the direct method is used the patient is requested to glide from side to side and to move the jaw forward and backward instead of using the up and down chewing movements to locate the premature contact points.

Indirect Method—The cases are mounted on an adjustable articulator and static checkbites are transferred from the mouth to the instrument; the lateral and protrusive movements are then reproduced on the instrument.

For superior results the cases should be finally checked by the indirect method, using the natural facilities of the mouth.

General Rule for Contouring Cusps

It has been established that there are two groups of occlusal movements. It should be noted, therefore, that each group has separate cusp areas to be recontoured. The general rule for contouring the cusps for the masticating cycles is to grind the buccal cusp of the lower and the lingual cusp of the upper. The rule for reshaping the cusps to the lateral glides is just the reverse: grind the buccal cusp of the upper and the lingual cusp of the lower.

Conclusion

Recent studies made in the occlu-

sion of natural and artificial teeth indicate a definite trend toward the application of dental physiology and the use of the natural facilities of the mouth. As knowledge of dental physiology is increased, the precept that the occlusal form should follow the function of the dental organ is being recognized.

Adapted from New York Journal of Dentistry **23**:203-204 (May) 1953.

The Cardiac Patient as a Surgical Risk

(1) SURGERY should not be undertaken when there is any evidence of active cardiac infection such as active rheumatic or leutic heart disease.

(2) Surgery should rarely be undertaken in the presence of a recent coronary closure.

(3) If congestive heart failure is present, surgery should be delayed until adequate compensation is established. This implies adequate control, not simply rapid digitalization.

(4) The presence of auricular fibrillation increases the risk significantly. Other arrhythmias are less likely to complicate the risk.

(5) Patients with aortic valvular disease, whether aortic stenosis or aortic insufficiency, represent significantly poorer risks than do the patients with mitral valve disease.

(6) Syphilitic heart disease offers a significantly poorer risk than rheumatic heart disease.

(7) Evidence of renal failure greatly enhances the risk.

(8) Not the least among the factors which influence the risk is the question of sick room psychology or the attitude in which the patient approaches the surgical procedure. A sincere spirit of conservative optimism must prevail or else the element of fear on the part of the patient may determine a mortality.

From *Heart Bulletin* **2**:67 (July-August) 1953.

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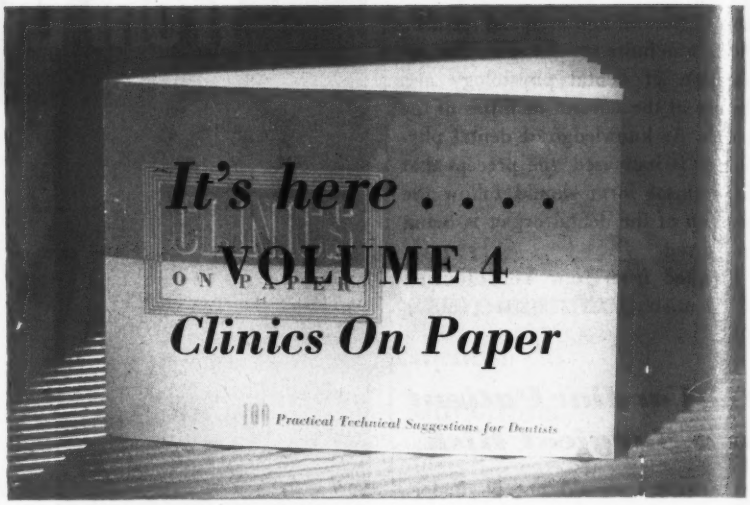

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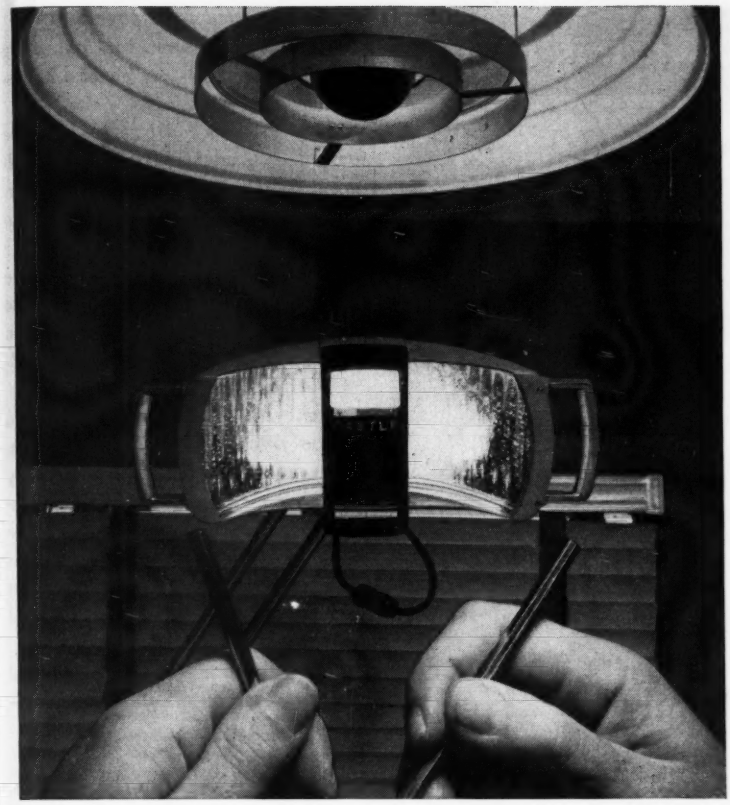

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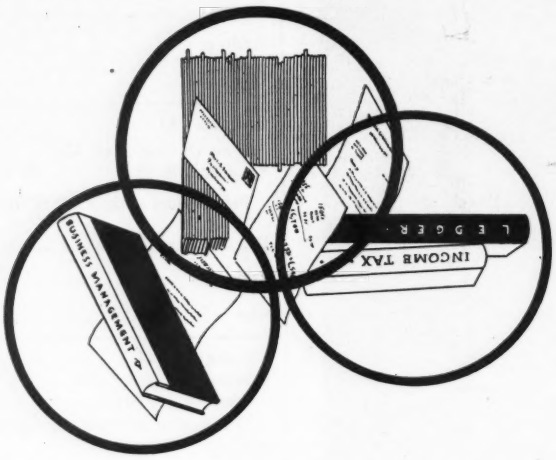

Business Management for the Busy Dentist

Have you ever wished for an alter-ego who could take care of the business end of your practice while you concentrate on dentistry? Arthur H. Labaree explains how a business management service—comparatively new to the medical-dental field—frees professional men from many petty, but important, details of practice management. Such a service may analyze your practice growth, help you in determining proper fees, keep your financial records, make out your income tax return, and, in the final analysis, actually help you to increase your net income. The plan is well worth investigating.

★ ★ ★

Ever since his article, "Think Thrice and Retire," appeared about a year ago, Doctor Frank S. Osmun has been receiving letters from dentists who want to know just how much money it will take to retire comfortably. He answers the queries of these men with facts and figures in "My Experience in Planned Retirement."

★ ★ ★

Few people who read newspaper accounts of General Dean's capture and final release, knew that the Major General was the son of a dentist and spent his boyhood in a small town in southern Illinois. A picture-spread tells the story.

★ ★ ★

Do you remember Doctor Stephens' article, "We Are Tired of Playing Villain"? It was a strong protest against the caricaturing of dentists and dentistry in order to produce comedy situations for radio and television programs. This month, a second article (by C. Shields) suggests that such distorted humor will be abandoned only when dentists deluge studios and sponsors with letters of protest. Such mass action has proved effective in the past and can be equally effective now.

★ ★ ★

In discussing "What Dental Patients Expect," Doctor C. W. Garleb admits that frequently the patient's unreasonable demands are the dentist's own fault. Dental restorations require upkeep and are no more "permanent" than any other piece of equipment—a car, a washing machine, or a house. Yet dentists placing these restorations sometimes neglect to warn patients that they must not expect "life-time" service from their dentures, crowns, and bridges.

★ ★ ★

What are folks reading in *your* reception room? Do you look over the magazines before placing them in the rack? Many periodicals, hitherto conservative, now feature topics not approved by all groups of readers—sex, marital relations, crime and other once-taboo subjects. Perhaps the only magazines approved by all of your patients are those featuring travel, sports, and science.

(*Continued from page* 544)

relaxation necessary for obtaining satisfactory local or general anesthetic.

3. If the procedure is likely to be painful, it is advisable to add an analgesic to the sedative. For this purpose aspirin, codeine, and even demerol are advised before, during, or after the operation. It is wise to have on hand a few ampules of coramine and of demerol which can be used in an emergency with or without the advice or presence of a physician.

Hemorrhage—The most common of the delayed complications, hemorrhage is usually mild but extremely alarming to the patient and his family as well as to the physician if he is not experienced. Usually the patient maintains the bleeding by disturbing the site of the operation and with constant rinsing.

Adapted from *Oral Surgery, Oral Medicine, and Oral Pathology* **6**:364-365 (March) 1953.

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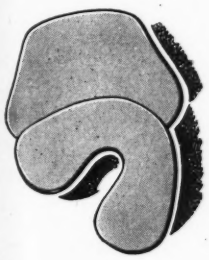

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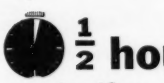

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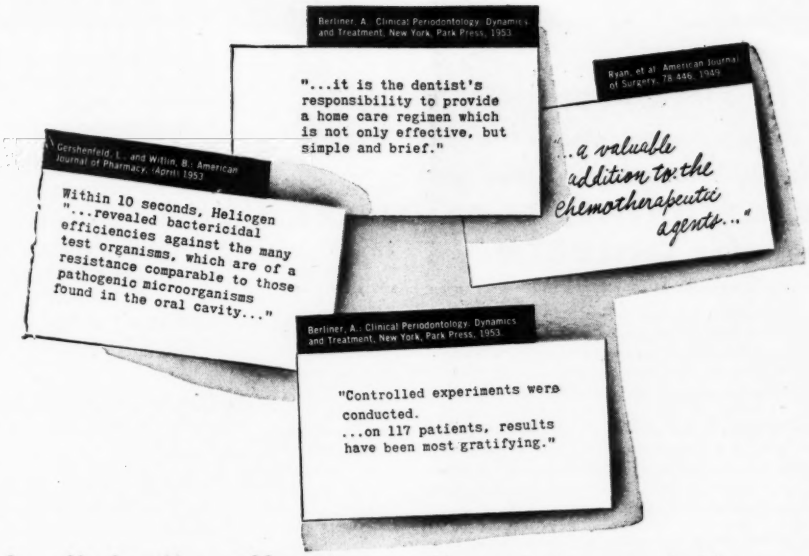

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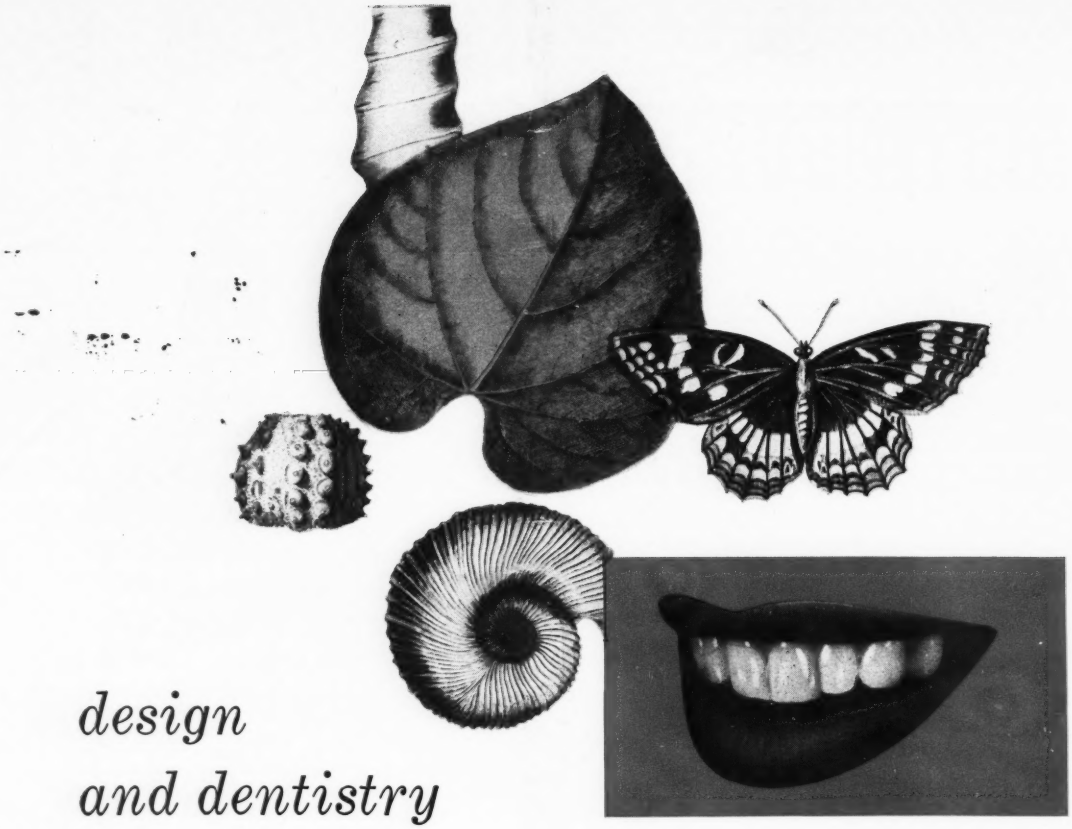

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